MONTANA BOARD OF MILK CONTROL

MARKET ADMINISTRATION & INDUSTRY REPORT

FISCAL YEAR 2017
ENDED JUNE 30, 2017

SEPTEMBER 2017

MONTANA DEPARTMENT OF LIVESTOCK

MILK CONTROL BUREAU

CHAD LEE & MARK CURTIS

MONTANA BOARD OF MILK CONTROL

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EXECUTIVE SUMMARY

The purpose of the Milk Control Bureau collecting and reporting information on Montana's milk industry is to provide insights and objective quantitative information to the Board of Milk Control to assist it in monitoring and understanding the industry to support policy development and deliberations.

The Milk Control Act provides powers to the Board of Milk Control to supervise, regulate, and control the milk industry. The act requires the Montana Department of Livestock to provide staff to assist in investigating matters, bring proceedings to enforce orders of the board, and assist in technical, enforcement, and regulatory activities.

The Milk Control Act includes a number of specific provisions enacted to support policy goals. Among these are

- mandatory licensing of businesses that produce or distribute milk in Montana;
- subjecting milk sold in Montana to assessments to fund the administration and enforcement of the act;
- establishment of minimum prices to be paid for raw milk according to how the milk is utilized, referencing federal milk classifications;
- authorization of the establishment of a quota supply control system and a statewide pooling market system;
- authority to govern fair trade practices, setting forth four specific trade practice prohibitions;
- expression of legislative intent that milk produced outside of state is subject to the Milk Control Act the instant that the milk is within the state and becomes subject to regulation by the state; and
- statement that the act does not supersede or interfere with federal law regulating interstate commerce.

Significant activity transpired for the Board of Milk Control, the Producer Committee, and the Milk Control Bureau in fiscal year 2017. All board members were reappointed by Governor Bullock and approved by the 2017 Legislature. The board met five times and conducted substantive meetings. The board amended ARM 32.23.301 to establish milk control assessment rates for fiscal year 2018. The board proposed and subsequently adopted (on July 21, 2017) new rules, rule amendments, and rule deletions in a major rulemaking proposal (numbered MAR 32-17-282 in the Montana Administrative Register). The rulemaking provided a definition for "classes of utilization", made related adjustments to administrative rules pertaining to surplus milk sales, restructured all milk control administrative rules into a single chapter, and made several changes to make the administrative rules more understandable. The rulemaking went into effect on August 1, 2017. Following the signing of 2017 House Bill 2, which authorized the budget request for the study, the board instructed the bureau to prepare a request for proposal (RFP). Subsequently, the board approved a RFP in August, and the State Procurement Bureau posted the RFP on September 1st. The study is anticipated to be completed prior to the end of fiscal year 2018.

Bureau highlights include extensive work in developing and drafting of rulemaking proposal MAR 32-17-282; designing a new spreadsheet for use in pooling calculations that is a major improvement over past spreadsheets and incorporates changes necessary to implement MAR 32-17-282; completion of the first draft of the RFP of the milk control study; completion of audits of poolings within approximately six weeks of pooling calculations for all months; and testimony in the 2017 Legislative Session pertaining to House Bill 2 (2019 biennium budget) and House Bill 377 (requirement to establish by rule the milk equivalency conversion factors used to determine distributor assessments on manufactured dairy products).

The majority of milk produced in Montana is utilized as fluid milk consumed in Montana. In fiscal year 2017, Montanans consumed an estimated 21 million gallons of fluid milk, 84.5% of which originated from Montana bottling plants using milk supplied by Montana dairy farmers. The next largest use of Montana-origin milk is ice cream and ice cream mix. Montanans consumed an estimated 4.5 million gallons of ice cream type products, 30% of which was manufactured by Montana plants. Approximately 8.2% of Class II fluid products (half and half, cream, and creamers) consumed by Montanans originated from Montana plants. Montana plants account for only small percentages of all other dairy products consumed by Montanans.

In fiscal year 2017, Montana dairies produced 286.5 million pounds of milk, down approximately 6.6 million pounds from fiscal year 2016. Montana dairies produced 294 million pounds of milk in 2000. Montana milk production since 2000 has ranged from 276 million to 298 million pounds per year, averaging roughly 288 million pounds per year. Stable production has occurred despite a significant decline in the number of dairies (from 144 licensed dairies in fiscal year 2000 to 63 licensed dairies in fiscal year 2017) and a modest decline in the size of the milking herd (from 13,216 cows in fiscal year 2000 to 11,251 cows in fiscal year 2017). The average number of cows being milked per dairy has increased from 92 cows per dairy in fiscal year 2000 to 179 cows per dairy in fiscal year 2017.

Montana exported nearly 111 million pounds of packaged fluid products (*compared to imports of approximately 44 million pounds of packaged fluid products*) and exported over 16 million pounds of bulk raw milk (*compared to imports of 25 million pounds of bulk raw milk*). A provision in the Milk Control Act (81-23-302(10), MCA) specifies that distributors with processing facilities in the state shall "*whenever possible, purchase milk from Montana producers for the processing of products to be sold in this state if milk is available from Montana producers at the price set by the board*." The bulk milk imports are primarily attributed to Meadow Gold – Billings purchasing milk from Wyoming producers, processing the milk, and distributing it to the Wyoming market.

Montana's pool marketing system allows producers to receive milk prices based on the overall utilization of pool milk received by Montana's pool handlers. In fiscal year 2017, 61 pool dairies produced and delivered milk with an average butterfat content of 3.74% to three pool handlers and the Montana Correctional Enterprises dairy plant, receiving approximately $46 million at a weighted average price of $16.36 per hundredweight (cwt). Compared to fiscal year 2016, the weighted average price increased by 6.3% and gross annual receipts increased by 3.8%. While pool production has been stable since 2000, the value of production has increased and directly reflects milk prices. Milk prices have roughly followed the path of other commodities (such as feedstuffs)

during the time period, increasing dramatically in 2007 and plunging in 2009 before recovering to price levels similar to the 2007 – 2008 time period, setting an all-time record high in 2014, and decreasing in 2015 and 2016 before beginning to recover and stabilize in the last half of 2016 and first half of 2017. The decline in milk prices in 2015 and 2016 lagged declines of most other agricultural commodities.

The value of pool milk is determined by production and utilization factors; factors related to the sale of surplus milk (milk in excess of pool handler's Montana Class I and Class II needs); and factors related to hauling costs absorbed by pool produces to transport bulk milk between pool plants.

Utilization Factors

Two major elements of utilization factors are (1) minimum prices for each class of milk and (2) the percentage of butterfat and skim (the portion of milk that is not butterfat) utilized in each class of milk. Minimum prices are highest for milk utilized as Montana Class I, which accounted for 54.5% of pool production in fiscal year 2017. The Montana Class I utilization percentage was 70.4% of pool production in 2000. The decline of Montana Class I utilization corresponds to the decrease in U.S. per capita consumption of fluid milk from 196 pounds per year in 2000 to 154 pounds per year in 2016. Other potential factors influencing the decline of the Montana Class I utilization percentage include increased availability and possibly market share of ultrapasteurized products (such as organic milk, lactose-free milk, and other specialty or branded products) that are imported into the state; loss of market share to a myriad of new beverage products, including plant-based milk substitutes; and changes in food distribution systems that have led to an increase in out-of-state distributors supplying Montana stores. Because Montana dairy processors do not utilize a large percentage of pool milk for production of Class II and Class III products, the increased Montana Class III utilization of pool milk is occurring through exports of surplus milk.

Surplus Sales Factors

Surplus sale factors allow for adjustments to the value of pool milk that reflect market and production dynamics. Major surplus sales factors include the volume of surplus milk that is sold in packaged form and bulk form, the margin by which the value received for each exceeds the Montana Class III value, and freight costs for sales of bulk surplus milk to out-of-state processors. The majority of surplus milk is sold as packaged milk to out-of-state markets. This is beneficial to the pool because freight costs are not charged to the pool for sales of packaged surplus milk and because there is virtually always a gain paid to the pool for the margin that the reported value exceeds its Montana Class III value. For surplus sales of bulk milk to out-of-state markets in fiscal year 2017, pool handlers pay the pool the difference between the value received and the Montana Class III value of that milk after subtracting hauling charges. If this calculation is negative, the pool "owes" pool handlers for such sales, which was the case for every month in fiscal year 2017. In fiscal year 2017, the overall adjustment for hauling costs for intrapool milk sales and surplus sales on combined bulk and packaged surplus milk sales (after deducting out-of-state freight costs for bulk milk sales) increased the value of pool milk by $1,217,220.

MILK MARKET ADMINISTRATION

MILK CONTROL ACT PRIMER

Policy Purpose

The Milk Control Act (Montana Codes Annotated Title 81, Chapter 23) provides for the regulation of the milk market in Montana. The act establishes that regulation of milk is in the public interest because milk is a necessary food article; adequate supply is vital to the public; and health regulations do not provide for adequate supply. The act specifies that it is a policy of the state to stabilize the marketing of milk and promote, foster, and encourage intelligent production and orderly marketing of milk dairy products; elimination of speculation and waste; and making the distribution between producer and consumer as direct as can be efficiently and economically done.

The Milk Control Act's policy statement declaration in 81-23-102, MCA, includes, but is not limited to, the following summarized statements. The policy declaration has not substantively changed since 1939.

- Trade practices in the dairy value chain can threaten the health and welfare of the state's citizens and undermine the sanitary condition and purity of milk.
- Past experience shows that when regulation does not provide for an orderly and profitable marketing of milk, credit status of producers and distributors is adversely affected, resulting in broader economic damage.
- The unique nature of milk lends itself to regulation. Milk is a highly perishable commodity that is easily contaminated. It cannot be stored for a great length of time and must be produced and distributed fresh daily.
- The supply of milk is variable but must be produced on a uniform and even basis and yet accommodate fluctuating demand; therefore a surplus of milk must be available to guarantee adequate supply to the public. Maintaining this surplus can be expensive; unless regulated the unavoidable surplus can undermine the milk industry by causing producers to relax their diligence in complying with health and sanitary provisions.
- The natural law of supply and demand has been found inadequate to protect the industry. In the past, the adequacy of supply has been threatened by market conditions and trade practices within the industry.
- The supply and quality of milk are affected negatively unless the producers are guaranteed and ensured a reasonable profit on milk.

Elements of the Milk Control Act

The act describes its policy purpose and authorizes necessary regulatory infrastructure. The act provides powers to the Board of Milk Control to supervise, regulate, and control the milk industry. The act requires the Montana Department of Livestock to provide staff to the board to assist in investigating matters; bring proceedings to enforce orders of the board; and assist in technical, enforcement, and regulatory activities.

The act includes a number of specific provisions. Among these are the following:

- mandatory licensing of businesses that produce or distribute milk in Montana;
- subjecting milk sold in Montana to assessments to fund the administration and enforcement of the act;
- establishment of minimum prices to be paid for raw milk according to how the milk is utilized, referencing federal milk classifications;
- authorization of the establishment of a quota supply control system and a statewide pooling market system where producers are paid uniformly;
- authority to govern fair trade practices, setting forth four specific trade practice prohibitions against secret rebates and discounts; gifts to secure fluid milk and cream business; offering special prices to customers not available to all customers who purchase under like terms/conditions; and payment (by a distributor to a producer) of a price lower than applicable producer price;
- expression of legislative intent that milk produced outside of state is subject to the Milk Control Act the instant that the milk is within the state and becomes subject to regulation by the state; and
- statement that the act does not supersede or interfere with federal law regulating interstate commerce.

BOARD OF MILK CONTROL – ACTIVITY IN FISCAL YEAR 2017

In fiscal year 2017, the Board of Milk Control met in Helena three times (August 26, 2016; January 6, 2017; and March 31, 2017) and met via conference call on October 4, 2016 and May 23, 2017. Governor Bullock reappointed W. Scott Mitchell to chair the board and reappointed Jerrold A. Weissman, Brian Beerman, Jim Parker, and Erik Somerfeld to the board. All appointments were confirmed by the 2017 Montana Legislature. The table below shows information about the board members and their terms of appointment. Appendix A provides additional information about the Board of Milk Control, its interaction with the Montana Department of Livestock, and differentiation of the roles of the department's Milk Control Bureau and the Milk & Egg Bureau.

Montana Board of Milk Control - Members

Name	Board Position	Residence	Term
W. Scott Mitchell	Chair	Billings	1/2015 – 1/2019
Jerrold A. Weissman	Vice-Chair	Great Falls	1/2015 – 1/2019
Brian C. Beerman	Member *(appointed February 26, 2016)*	Fairfield	1/2017 – 1/2021
Jim Parker	Member	Fairfield	1/2017 – 1/2021
Erik Somerfeld	Member	Power	1/2017 – 1/2021

The Board of Milk Control can be reached through the contact information listed below.

Milk Control Bureau
P.O. Box 202003
Helena, MT 59620-2003
(406) 444-2875 or LivMilkControl@mt.gov

Rulemaking activity by the board in fiscal year 2017:

- Amendment to ARM 32.23.301 to establish milk control assessment rates for fiscal year 2018 as proposed in Montana Administrative Register (MAR) 32-17-280.
- Proposed and subsequently adopted (on July 21, 2017) new rules, rule amendments, and rule deletions in a major rulemaking proposal (numbered MAR 32-17-282 in the Montana Administrative Register). The rulemaking provided a definition for "classes of utilization", made related adjustments to administrative rules pertaining to surplus milk sales, restructured all milk control administrative rules into a single chapter, and made several changes to make the administrative rules more understandable. The rulemaking went into effect on August 1, 2017. In August 2016, the board became aware that 2007 HB 431 had not been implemented; this rulemaking was pursued by the board primarily to implement the legislation.

In fiscal year 2016, the board and industry stakeholders reached consensus on the need for an economic study of Montana's price formulas and other milk market administration issues. This led the board to request $100,000 of spending authority to conduct the study in its proposed 2019 biennium budget. Following the signing of 2017 House Bill 2, which authorized the budget request for the study, the board instructed the bureau to prepare a request for proposal (RFP). Subsequently, the board approved a RFP in August, and the State Procurement Bureau posted the RFP on September 1st. The study is anticipated to be completed prior to the end of fiscal year 2018. With stakeholder input, the board identified five study components that are addressed in the RFP's scope of services.

- Evaluation of Montana class price formulas and recommendations for relevant class price formulas
- Evaluation and recommendations regarding adjustments (to cost of milk purchased from Montana producers) for milk received by plants that is in excess of Montana market needs
- Evaluation and recommendations regarding transportation rates for bulk milk diverted to alternative pool plant or hauled between pool plants
- Evaluation and recommendations regarding the effectiveness of quota system to improve producer blend prices
- Evaluation of the plausibility of expanded dairy processing and manufacturing in Montana and development of recommendations regarding Montana's class price formulas and quota system that could possibly facilitate plausible expansion

PRODUCER COMMITTEE – ACTIVITY IN FISCAL YEAR 2017

Administrative rule established the Producer Committee. The committee deliberates over transfers of quota and is authorized by rule to take over the responsibility from pool handlers of selling surplus milk (milk produced in excess of Montana processors' Class I and Class II milk needs). Pool handlers may also relinquish the responsibility to market surplus milk to the committee.

In fiscal year 2017, the Producer Committee met four times (August 1, 2016; August 29, 2016; September 26, 2016; and March 10, 2017) to elect a chair and vice chair; consider ten quota transfers requests, and discuss the topics of the sale of surplus milk and quota utilization. The August 29, 2016 meeting was held in Helena. All other meetings were held via conference call.

The bureau analyzed quota utilization for the committee for the period of September 2015 through August 2016. During this time, Montana pool production averaged 785,673 lbs/day, which was 31,914 lbs/day less than outstanding quota issued (817,587 lbs/day). Pool milk production ranged from 14,624 lbs/day of production under outstanding quota (May 2016) to 56,333 lbs/day of production under outstanding quota (October 2015).

- Twenty dairies had average production that exceeded their quota, and as a group produced 36,543 lbs/day over their quota; ten of these dairies had average daily production that was over their quota by more than 10%. Eleven dairies produced over their quota every month. Excess production accounted for less than 4% of pool production.
- Forty-one dairies had average production that was less than their quota, and as a group produced 68,461 lbs/day under their quota; twenty-seven of these dairies had average daily production that was under their quota by more than 10%. Twenty-eight dairies produced under their quota every month.

The following table shows the committee's membership for a two-year term that expires on December 31, 2017. In its August 1, 2016 meeting, the committee elected David Miller to serve as the committee chair and elected Sam Hofer to serve as the committee vice-chair.

Fiscal Year 2017 Producer Committee Members:

Producer Name	Committee Position	Pool Plant Receiving Milk	Dairy Name
David Miller	Chair	Darigold - Bozeman	Montana Correctional Enterprises Dairy
Sam Hofer	Vice-Chair	Meadow Gold – Great Falls	Surprise Creek Colony Dairy
Tim Huls	Member	Darigold – Bozeman	Huls Dairy
Nelson Kamerman	Member	Darigold - Bozeman	Dairyland Farms
Mark Kleinsasser	Member	Meadow Gold – Billings	Mountain View Colony Dairy
Ruben Wurz	Member	Meadow Gold – Great Falls	Big Stone Colony Dairy
Andrew Wipf	Member (serving as At-Large Committee Member)	Meadow Gold – Great Falls	Big Sky Colony Dairy

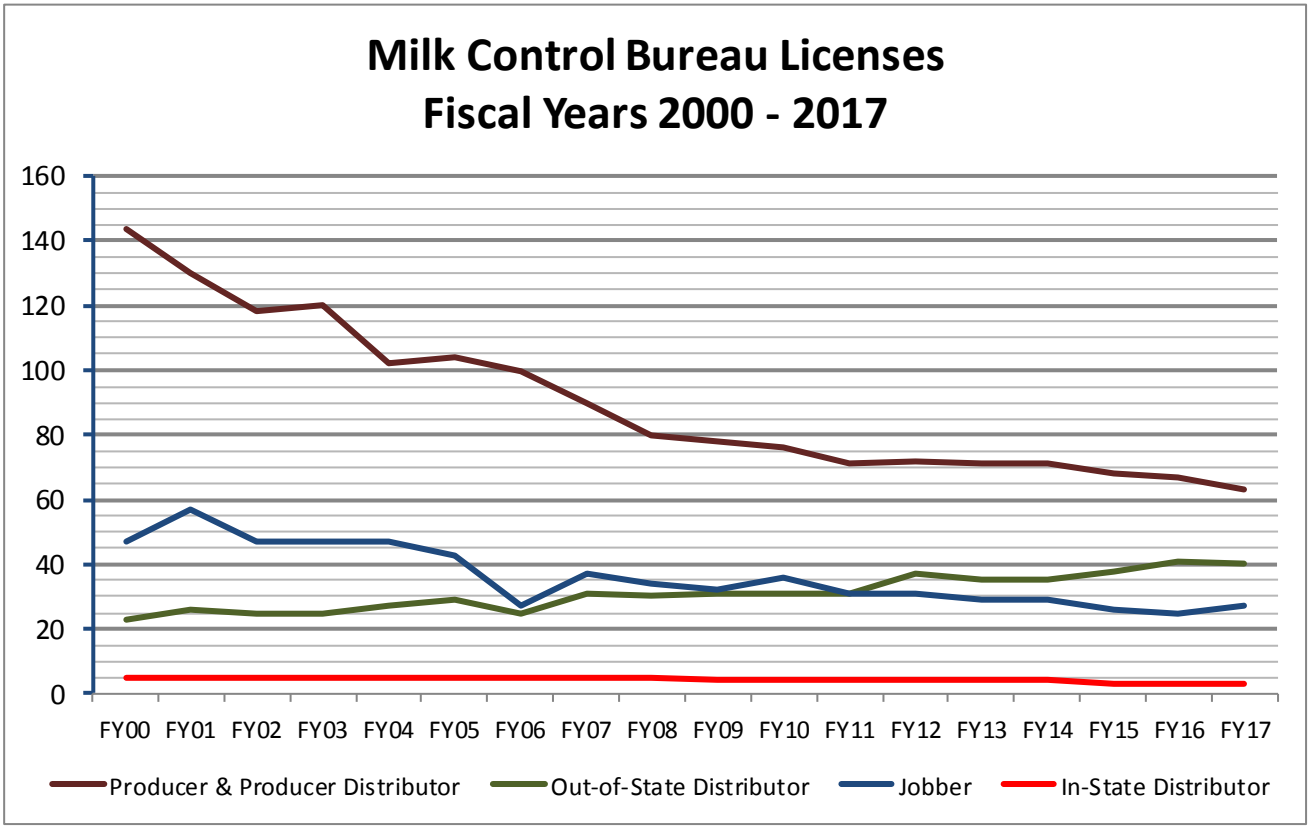
LICENSING SUMMARY

The Milk Control Bureau issues licenses to producers, producer-distributors, distributors, and jobbers (a class of distributors that purchase and resell milk). The following table shows the number of licenses issued in fiscal year 2017 for each type of business. Licenses are issued on an annual fiscal year basis (July 1 – June 30). By statute, the license fee is two dollars per license, and the fees are deposited into the state general fund.

Licenses Issued for Fiscal Year 2017

License Type	Number of Licenses
Producer	60
Producer-Distributor	3
In-State Distributor	3
Out-of-State Distributor	41
Jobber	27

The following chart shows the number of licenses issued for each license type for fiscal year 2000 through fiscal year 2017, combining the number of producers and producer-distributors. The chart reflects consolidation affecting the milk industry with a significant decline of licensed producers, a decrease in in-state distributors, a decline in the number of jobbers, and an increase in the number of out-of-state distributors. Starting in fiscal year 2015, Montana Correctional Enterprises was licensed as a producer-distributor instead of an in-state distributor. Had the business been licensed as a producer-distributor in prior years, the number of in-state distributor licenses would have been reduced by one. The change of significance in the number of in-state distributors occurred after fiscal year 2008, when Meadow Gold did not renew its in-state distributor license for its Kalispell facility.



ADMINISTRATIVE ASSESSMENTS AND COLLECTION

Administrative assessments are levied on sales of milk by Montana producers, producer-distributors, in-state distributors, and out-of-state distributors to secure funds to administer and enforce the Milk Control Act. The assessments are classified as special revenue and are the sole source of funding for the Board of Milk Control and the Milk Control Bureau.

Fiscal Year 2017 Assessment Rates By License Type

License Type	FY2017 Assessment Rate
Producer	$0.035/cwt
Distributor	$0.035/cwt
Producer-Distributor	$0.070/cwt

Assessment Rates & Collection – Changes for Fiscal Year 2018

Effective for fiscal year 2018, administrative assessments will decrease. Assessment rates for producers and distributors will decrease to $0.025/cwt, and assessment rates for producer-distributors will decrease to $0.05/cwt. The rate assessment decrease begins with July 2017 milk sales.

SELECTED MILK CONTROL BUREAU HIGHLIGHTS

- The bureau's research into classification of bulk cream sales identified the necessity for adoption of administrative rules to define "classes of utilization" that follow federal definitions to implement 2007 House Bill 431.
- Corresponding with changes driven by the need to establish by rule a definition for "classes of utilization", the bureau developed recommendations to amend administrative rules pertaining to the utilization value for surplus sales of packaged fluid milk. The bureau thoroughly tested its recommendations to determine the economic impact of the recommendations on pool producers and pool plants.
- The bureau held a meeting with stakeholders on December 6, 2016 to discuss recommendations for the definition of "classes of utilization" and alternatives for adjustments to administrative rules pertaining to surplus milk sales. The bureau also presented information on analysis of Montana's Class II and Class III price formulas.
- The bureau assisted the Board of Milk Control with the administrative rulemaking that included two rulemaking proposals that were adopted. MAR 32-17-282, which was adopted on July 21, 2017, provided a definition for "classes of utilization", made related adjustments to administrative rules pertaining to surplus milk sales, restructured all milk control administrative rules into a single chapter, and made several changes to make the administrative rules more understandable.
- Corresponding with the need to make changes in pooling calculations to implement changes proposed in MAR 32-17-282, the bureau completed a long-term goal to design a new spreadsheet for pooling calculations. The new pooling spreadsheet was developed using best practices (for spreadsheet design) and replaced roughly a dozen spreadsheet files with a single spreadsheet file. The bureau performed extensive

troubleshooting that included testing many months of calculations and provided plant accountants and other stakeholders with copies of the spreadsheet and detailed explanations in June. Subsequently, the new pooling spreadsheet was first used in September to make pooling calculations for the month of August 2017. The process of developing the rules proposed in MAR 32-17-282 and designing the new pooling spreadsheet were integrated to ensure that pooling calculations were consistent with administrative rules.

- In June 2017, the bureau completed the first draft of the request for proposal (RFP) for the milk control study authorized in the 2017 Legislative Session. Subsequently, the board approved the RFP (with revisions) in August, and the State Procurement Bureau posted the RFP on September 1st.
- The bureau completed audits of poolings within approximately six weeks of the pooling calculations for all months.
- The bureau testified before the 2017 Legislature Appropriations Joint Subcommittee regarding the proposed 2019 biennium budget. The proposed budget for the Board of Milk Control was approved by the legislature and signed by the governor.
- The bureau testified before the House Agriculture Committee and the Senate Agriculture, Livestock and Irrigation Committee on House Bill 377 which proposed that the board be required to establish by rule the milk equivalency conversion factors used to determine distributor assessments on manufactured dairy products. The bill ultimately passed and was signed into law. The board will propose rules to implement House Bill 377 in fiscal year 2018.

ESTIMATE OF MONTANA DAIRY CONSUMPTION

DISCUSSION OF ESTIMATE METHOD & LIMITATION

The estimated dairy consumption for Montana is based on combining information from assessments reports submitted by pool handlers, producer-distributors, and out-of-state distributors. The forms gather different levels of information from each class of licensed distributor. Information from pool handlers and producer-distributors focuses on the weight of milk utilized. Information gathered from import reports from in-state and out-of-state distributors focuses on product volume or weight to which milk equivalent factors are applied to determine milk equivalent weight subject to administrative assessments. Because different sources of information are being combined, the information should be viewed as being an estimate.

Pool handlers (Meadow Gold and Darigold) and Montana Correctional Enterprises report how milk received is utilized in monthly reports submitted for pooling calculations. Pool handlers sell some bulk milk to other dairy manufacturers located in Montana. The utilization of this milk is attributed to the class of utilization thought to account for these manufacturers' utilization.

Producer-distributors report total milk produced and sold in reports submitted with payment of administrative assessments and also report how the milk was utilized. In estimating dairy product consumption, product weights are estimated through calculations that use product density and milk equivalent factors.

All distributors report imports of dairy products.

SUMMARY

The following tables show estimates of dairy consumption by Montanans in terms of product consumed (gallons or pounds of product) and in terms of milk equivalent (estimated pounds of milk utilized to manufacture the products consumed). The milk equivalent weight of imported dairy products is calculated by multiplying the unit of product imported by the milk equivalent factors shown in the table labeled "Dairy Product Milk Equivalent Factors Used by the Milk Control Bureau".

The majority of milk produced in Montana is utilized for fluid milk consumed in Montana. In fiscal year 2017, Montanans consumed an estimated 21 million gallons of fluid milk, 84.5% of which originated from Montana bottling plants using milk supplied by Montana dairy farmers. The next largest use of Montana-origin milk is for ice cream and ice cream mix. Montanans consumed an estimated 4.5 million gallons of ice cream type products, 30% of which was manufactured by Montana plants. Approximately 8.2% of Class II fluid products (half and half, cream, and creamers) consumed by Montanans originated from Montana plants. Montana plants account for only small percentages of all other dairy products consumed by Montanans.

Production of these products outside of Montana is largely a function of industry dynamics that relate to scales of efficiency in manufacturing and placement of manufacturing facilities near areas with greater population or areas with larger supplies of milk.

FISCAL YEAR 2017: MONTANA ESTIMATED DAIRY CONSUMPTION (BY PRODUCT VOLUME OR WEIGHT)

Class / Type / Product	Products from Montana Plants	% of Product Total from Montana	Products from Out-of-State Plants	% of Product Total from Out-of-State	Total Consumption Estimate
CLASS I (gallons)					
White & Flavored Milk	17,740,561	84.46%	3,265,166	15.54%	21,005,727
Buttermilk			106,767	100.00%	106,767
Eggnog			41,311	100.00%	41,311
CLASS II					
Fluid/Whip (gallons)					
Half and Half	62,179	6.67%	870,614	93.33%	932,793
Whipping Cream	95,873	15.61%	518,328	84.39%	614,201
Creamers			281,683	100.00%	281,683
Aerosol Whip			97,798	100.00%	97,798
Uncultured (gallons)					
Ice Cream / Mix / Ice Milk / Novelties	1,370,035	30.24%	3,160,031	69.76%	4,530,066
Frozen Yogurt / Mix			162,987	100.00%	162,987
Cream for Candy Products	12,319	100.00%			12,319
Cultured (pounds)					
Cottage Cheese	36,052	0.81%	4,394,419	99.19%	4,430,471
Sour Cream & Dressings			6,339,005	100.00%	6,339,005
Yogurt / Kefir	398,409	2.20%	17,673,728	97.80%	18,072,137
CLASS III (pounds)					
Cream Cheese			2,008,246	100.00%	2,008,246
Cheese	84,019	0.31%	26,715,027	99.69%	26,799,046
Butter	414	0.01%	7,699,380	99.99%	7,699,795

DAIRY PRODUCT MILK EQUIVALENT FACTORS USED BY THE MILK CONTROL BUREAU

Product	Milk Equivalent *(lbs of milk to make 1 lb of product)*	Milk Equivalent *(lbs of milk to make 1 gallon of product)*
White Milk / Flavored Milk		8.60 – 8.63
Buttermilk		8.62
Egg Nog		8.58
Whipping Cream		8.35 – 8.37
Half and Half / Creamers		8.55
Aerosol Whip		8.48
Ice Cream		3.51
Ice Milk / Frozen Yogurt / Novelties		3.54
Ice Cream Mix		7.01
Yogurt Mix		7.08
Cottage Cheese	5.67	
Dry Curd	7.33	
Sour Cream / Dips / Dressings / Sour Half and Half	1	
Yogurt / Kefir	1	
Cream Cheese	8.99	
Cheese	9.90	
Butter	21.80	

The amount of milk used to manufacture different products varies. One pound of cheese requires nearly ten pounds of milk because milk contains approximately 88% water, much of which is removed in the manufacturing process. Cows produce milk that has 3.5% - 4% butterfat content, with 3.67% butterfat considered to be a representative average. Butter has a minimum of 80% butterfat. Therefore, it takes many pounds of milk (nearly 22 pounds) to manufacture one pound of butter. Because milk equivalent factors for cheese and butter are high, the total milk equivalent of Class III products consumed by Montanans exceeds the milk equivalent of Class I and Class II products consumed by Montanans.

FISCAL YEAR 2017: MONTANA ESTIMATED DAIRY CONSUMPTION – BY MILK EQUIVALENT WEIGHT

Class / Type / Product	Products from Montana Plants *(lbs milk equivalent)*	Products from Out-of-State Plants *(lbs milk equivalent)*	Total Consumption Estimate *(lbs milk equivalent)*
CLASS I			
White & Flavored Milk	152,923,636	28,135,113	181,058,749
Buttermilk		920,331	920,331
Eggnog		354,449	354,449
TOTAL CLASS I	**152,923,636**	**29,409,893**	**182,333,529**
CLASS II			
Fluid/Whip			
Half and Half	531,628	7,443,750	7,975,378
Whipping Cream	801,495	4,331,977	5,133,472
Creamers		2,408,390	2,408,390
Aerosol Whip		829,326	829,326
Subtotal	**1,333,123**	**15,013,443**	**16,346,566**
Uncultured			
Ice Cream / Mix / Ice Milk / Novelties	7,482,441	11,577,176	19,059,617
Frozen Yogurt / Mix		984,881	984,881
Candy Products	102,860		102,860
Subtotal	**7,585,301**	**12,562,058**	**20,147,359**
Cultured			
Cottage Cheese	204,417	24,932,721	25,137,138
Sour Cream & Dressings		6,339,005	6,339,005
Yogurt / Kefir	398,409	17,673,728	18,072,137
Subtotal	**602,826**	**48,945,454**	**49,548,280**
TOTAL CLASS II	**9,521,250**	**76,520,954**	**86,042,204**
CLASS III			
Cream Cheese		18,054,132	18,054,132
Cheese	831,788	264,478,763	265,310,551
Butter	9,030	167,846,493	167,855,523
TOTAL CLASS III	**840,818**	**450,379,388**	**451,220,206**

MINIMUM PRODUCER PRICES

CLASSIFIED PRICING

To aid in the orderly marketing of milk, many jurisdictions in the United States, starting in the 1930's, established price regulation systems that set prices for milk purchased from dairies based upon how the buyer (a processor) utilizes the milk. Currently in the Unites States, over 85% of all milk sold by dairy farms is subject to federal or state price regulation that uses classified pricing. Classified pricing systems have been adopted in a number of other western countries as well. Such systems help prevent situations in which producers are pitted against each other by processors to undercut prices, which can lead to a chaotic marketplace in which the supply and sanitary condition of milk becomes imperiled. Montana's milk classification system is similar to federal (USDA) milk classification. Class I utilization includes fluid milk products, including buttermilk and eggnog. Class II utilization includes fluid cream products, ice cream type products, cottage cheese, sour cream and yogurt. Class III utilization includes cheese and cream cheese. Class IV utilization includes butter and dried milk. Montana law allows the Board of Milk Control to combine milk classes, and Montana has in practice combined Class III and Class IV. In Montana, Class III utilization also includes bulk milk inventory, dumped milk, and up to 2% shrinkage, with any shrinkage in excess of 2% of pool receipts being allocated to Class I utilization. Shrinkage is a term that describes milk received that is not accounted for by utilization or inventory. Shrink is unavoidable and typically is caused by processing losses and incidental waste. Following past practice, the bureau has classified sales of bulk cream, bulk milk, and packaged milk products to out-of-state markets as being Class III utilization.

Beginning in August 1, 2017, the administrative rule that defines "classes of utilization" will be in a new rule numbered ARM 32.24.150. In this definition, Montana classes of utilization will follow the federal definitions in effect on June 9, 2017. As a result, packaged fluid milk products sold into out-of-state markets will change to being a Class I utilization. Montana Class III will continue to combine federal Class III and Class IV.

PRICE FORMULAS

The Milk Control Act requires that the Board of Milk Control establish formulas to calculate minimum prices to be paid for milk based upon classified utilization. During fiscal year 2017, the administrative rules that implement the classified pricing mandated by the Milk Control Act were established in ARM 32.24.301 and ARM 32.23.102(12). Beginning in August 1, 2017, the administrative rule that includes the price formulas will be in a new rule numbered ARM 32.24.480.

Montana Class I

Montana's Class I milk price formula adds a $2.55/cwt differential to the USDA Federal Order Base Class I price. The Montana Class I butterfat price is the Federal Order Advanced Butterfat Pricing Factor plus $0.0255/lb. The USDA Federal Milk Marketing Administration announces these prices in advance of the month of production. The federal announcement is generally made on the Wednesday following the first two full weeks of the month. The formulas used to calculate Montana Class I prices are shown in the following figure, using August 2015 as an example.

Calculation of Montana Class I Announced Prices for August 2015	
ARM 32.24.301(5): Federal Order Base Class I Price ($/cwt)	$16.28
ARM 32.24.301(5): Differential ($/cwt)	$2.55
CLASS I PRICE FOR MILK TESTING 3.5% BUTTERFAT ($/CWT)	**$18.83**
ARM 32.24.301(5): Federal Order Advanced Butterfat Pricing Factor ($/lb)	$2.1332
Differential: $2.55/cwt / 100 lbs/cwt ($/lb)	$0.0255
CLASS I BUTTERFAT PRICE PER POUND ($/LB)	**$2.1587**

Montana Class II & Class III

Montana's Class II and Class III milk prices are based on the last prices (market prices) reported prior to the 20th of the month in the National Dairy Market News Weekly Report published by USDA Agricultural Marketing Service. The report is generally published on the Friday of the second full week of each month. The administrative rules specify the use of the spray process nonfat dry milk solids price for the Central States area. The National Dairy Market News Weekly Report reports a low/high price range for nonfat dry milk; so an average is taken and used in the Montana Class II and Class III price formulas. The administrative rules specify the use of the Chicago area Grade AA butter price; this price is reported in the National Dairy Market News Weekly Report in a table labeled "CME Group Cash Trading". The formulas used to calculate Montana Class II and Class III prices are shown in the following figures, using August 2015 as an example.

Calculation of Montana Class II Announced Prices for August 2015		
ARM 32.24.301(6): Average spray process dry milk solids (USDA Central Region Nonfat Dry Milk) ($/lb))	$0.8525	
ARM 32.24.301(6): Freight Adjustment ($/lb)	$0.0125	
Subtotal ($/lb)	$0.8650	
ARM 32.24.301(6): multiplied by 8.2 (lbs nonfat dry solids per cwt milk)		$7.0930
ARM 32.24.301(6): Last quote for Grade AA butter (Chicago Area Grade AA Butter Price) ($/lb)	$1.8400	
ARM 32.24.301(6): less a differential of $0.089	($0.0895)	
Subtotal ($/lb)	$1.7505	
ARM 32.24.301(6): multiplied by 4.2 (lbs butter per cwt milk)		$7.3521
Nonfat Dry Solids Price Component + Butter Price Component ($/cwt milk)		$14.4451
ARM 32.24.301(6): Less Make Allowance of 8.5% ($/cwt)		($1.2278)
CLASS II PRICE FOR MILK TESTING 3.5% BUTTERFAT ($/CWT)		**$13.22**

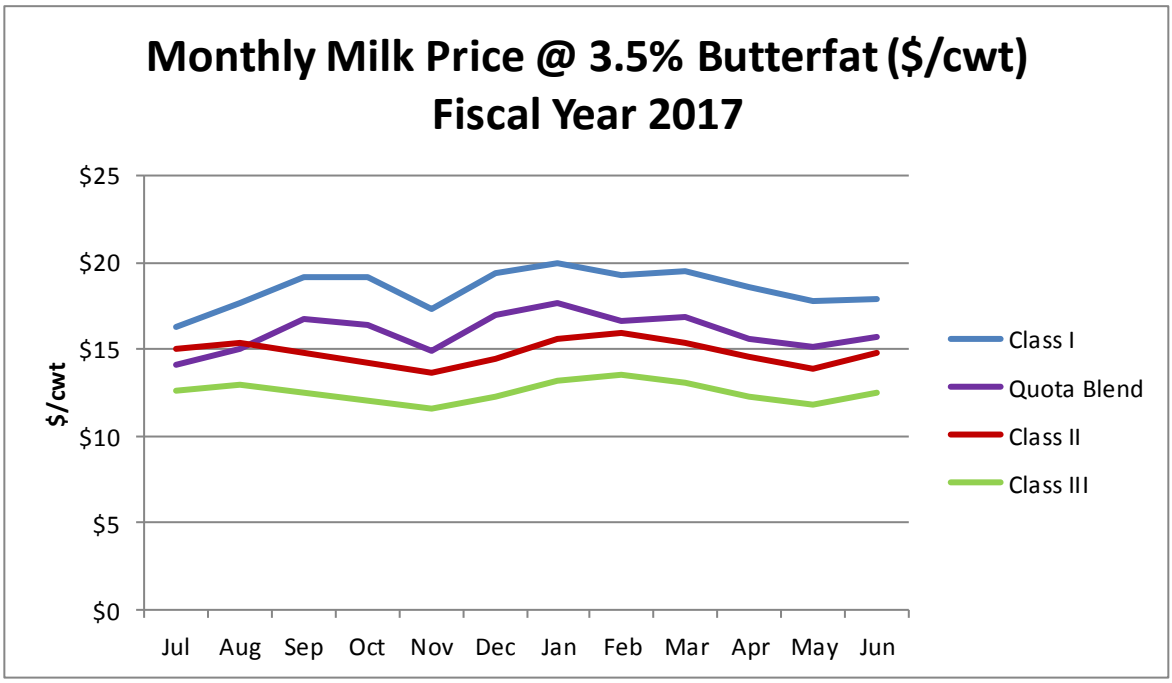
Calculation of Montana Class II Announced Prices for August 2015 - Continued	
ARM 32.24.301(6): Last quote for Grade AA butter (Chicago Area Grade AA Butter Price) ($/lb)	$1.8400
ARM 32.24.301(6): less a differential of $0.0895	($0.0895)
Subtotal ($/lb)	$1.7505
ARM 32.24.301(6): multiplied by 0.111	$0.1943
ARM 32.24.301(6): rounded to the nearest $0.005 ($/0.1% butterfat content)	$0.195
multiplied by 10 ($/% butterfat content = $/lb butterfat)	
CLASS II BUTTERFAT PRICE PER POUND ($/LB)	**$1.950**

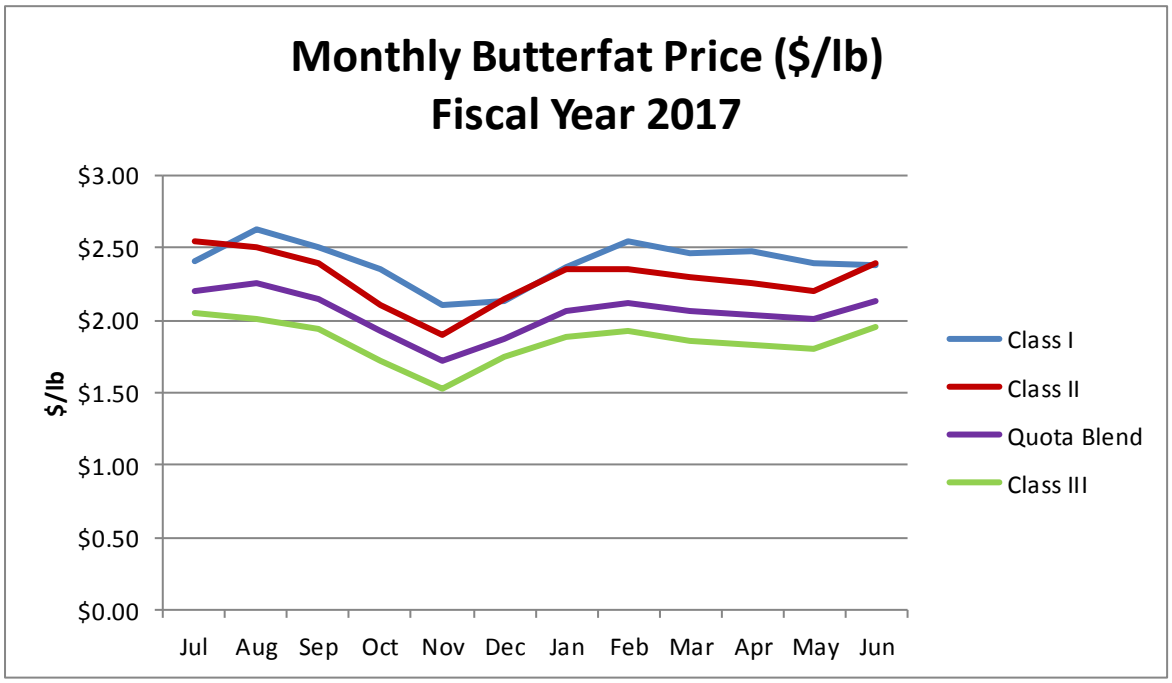
Calculation of Montana Class III Announced Prices for August 2015		
ARM 32.24.301(7): Last quote for Grade AA butter (Chicago Area Grade AA Butter Price) ($/lb)	$1.8400	
ARM 32.24.301(7): less a differential of $0.0895	($0.0895)	
Subtotal ($/lb)	$1.7505	
ARM 32.24.301(7): Less 10%	($0.1751)	
Butter Price Component: **CLASS III BUTTERFAT PRICE PER POUND ($/LB)**	**$1.5755**	
Average spray process dry milk solids (USDA Central Region Nonfat Dry Milk) ($/lb)	$0.8525	
ARM 32.24.301(6): Freight Adjustment ($/lb)	$0.0125	
Subtotal ($/lb)	$0.8650	
ARM 32.24.301(7): multiplied by 8.2 (lbs nonfat dry solids per cwt milk)	$7.0930	
ARM 32.24.301(7): less 17%	($1.2058)	
Nonfat Dry Solids Price Component: **CLASS III SKIM PRICE PER POUND ($/LB)**	$5.8872 **$0.0589**	
Class III BF Price/lb x 3.5 lbs butterfat per cwt milk: VALUE OF CLASS III BUTTERFAT AT 3.5 LBS		$5.5143
Class III Skim per lb x 96.5 lbs per cwt milk: VALUE OF CLASS III SKIM MILK AT 96.5 LBS ($)		$5.6811
CLASS III PRICE PER CWT FOR MILK TESTING 3.5% BUTTERFAT ($/CWT)		**$11.20**

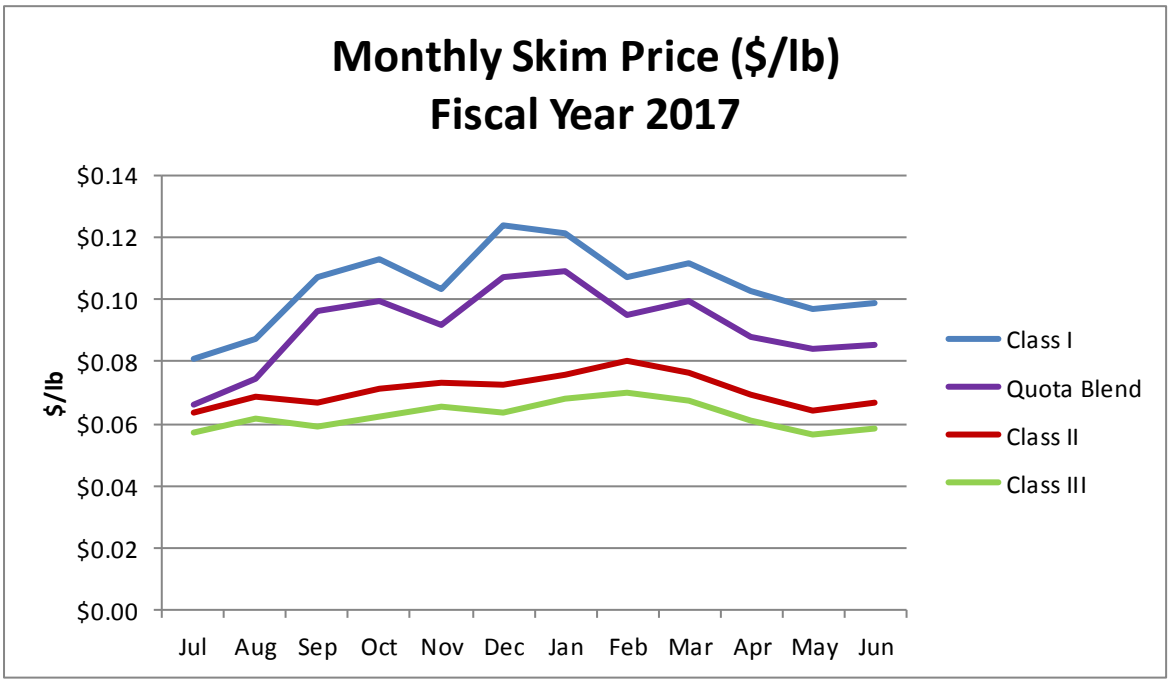
ANNOUNCED MINIMUM PRICES IN FISCAL YEAR 2017

Cows often produce milk that has 3.5% - 4% butterfat. The dairy industry often uses a reference price for milk having 3.5% butterfat. One hundred pounds of milk (a hundredweight, abbreviated "cwt") with 3.5% butterfat consists of 3.5 pounds of butterfat and 96.5 pounds of "skim". Skim consists of water (over 90% of skim weight) and solids that are not fat (lactose, protein, and minerals). In Montana, an individual producer is paid on the actual butterfat and skim produced by the dairy's herd for each month of production.

The charts below show announced minimum prices for months in fiscal year 2017 (July 2016 – June 2017) along with the calculated quota price based on actual milk utilization. Prices generally improved compared to fiscal year 2016, particularly compared to January 2016 – June 2016. Appendix C provides information on the reference prices used to calculate Montana's announced minimum prices.

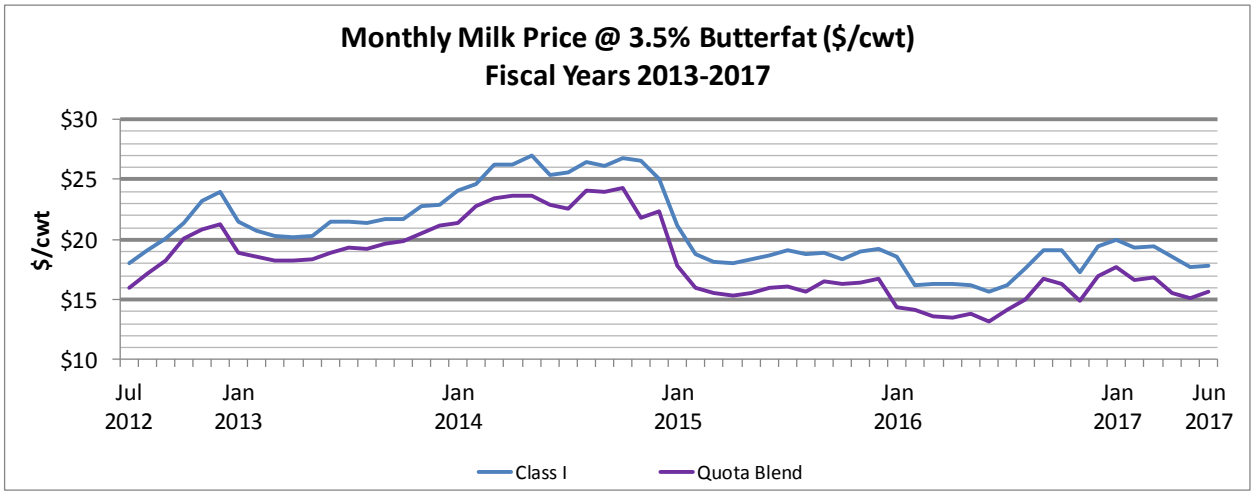

Monthly Milk Price @ 3.5% Butterfat ($/cwt)
Fiscal Year 2017
$25
$20
$15
$10
$5
$0
$/cwt
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Class I
Quota Blend
Class II
Class III

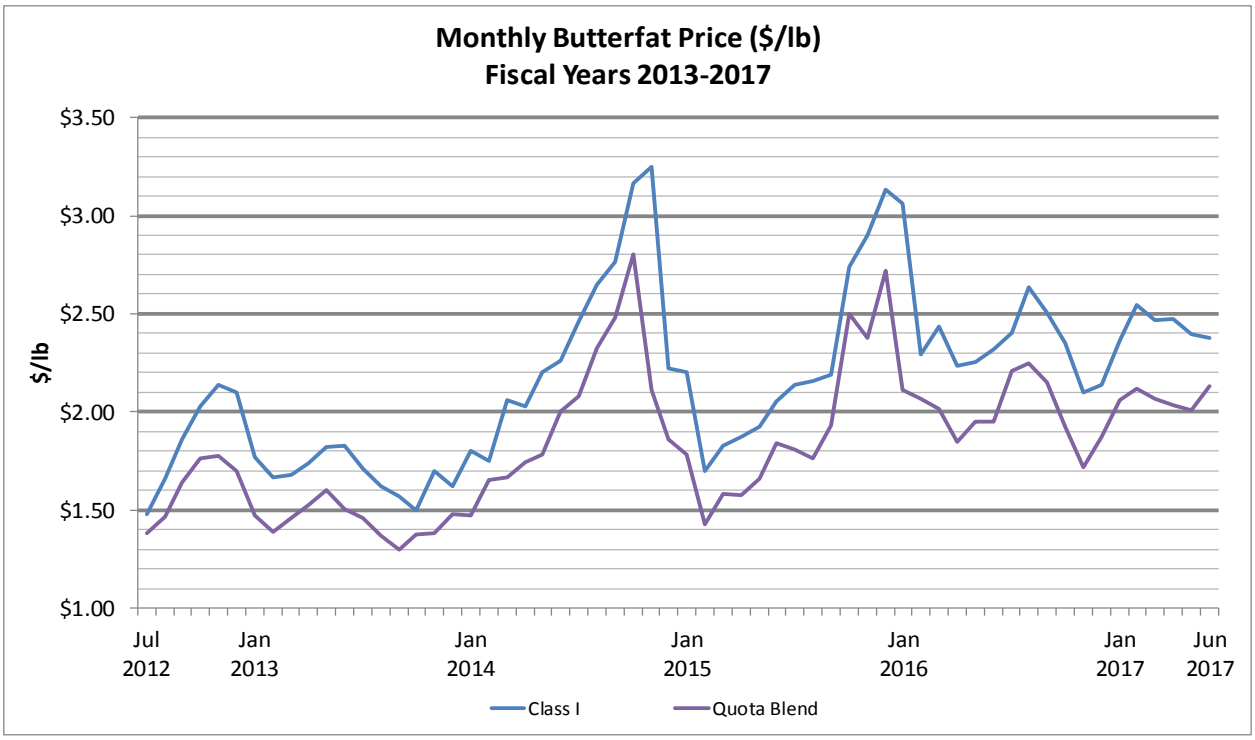

Monthly Butterfat Price ($/lb)
Fiscal Year 2017
$3.00
$2.50
$2.00
$1.50
$1.00
$0.50
$0.00
$/lb
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Class I
Class II
Quota Blend
Class III

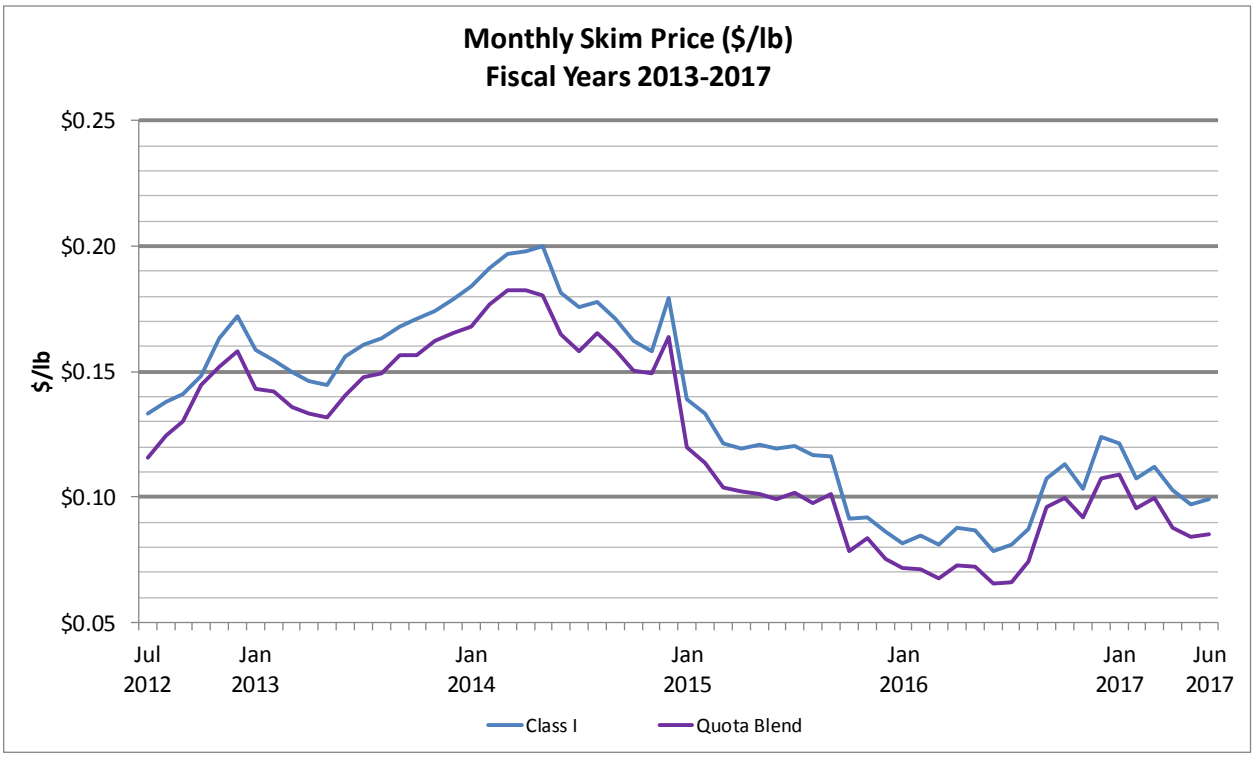


PRICE CHARTS JULY 2012 – JUNE 2017

The following charts show Montana Class I prices and Montana Quota Blend producer prices for milk containing 3.5% butterfat, butterfat component of milk, and skim component of milk. The prices received for milk with 3.5% butterfat were higher in fiscal year 2017 than the second half of fiscal year 2016. Seasonal increases in butterfat prices occurred in the fall in three of the five years shown (2012, 2014, and 2015) but did not occur in the fall of 2016. The skim prices in fiscal year 2017 were noticeably higher than in fiscal year 2016. The high skim prices in 2014 and the substantially lower skim prices since January 2015 likely reflect the influence of export market conditions for nonfat dry milk on the price of skim.



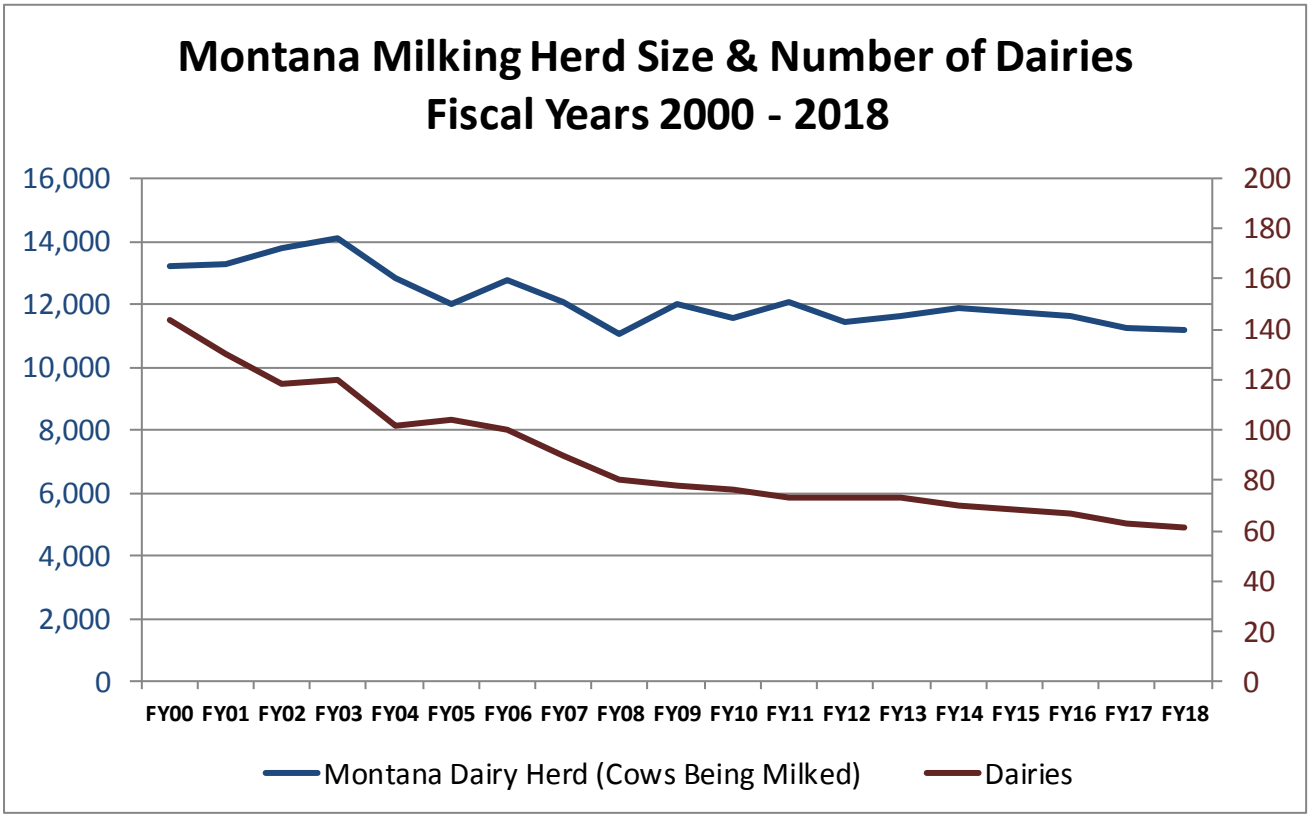

Monthly Butterfat Price ($/lb)
Fiscal Years 2013-2017
$3.50
$3.00
$2.50
$2.00
$1.50
$1.00
$/lb
Jul 2012
Jan 2013
Jan 2014
Jan 2015
Jan 2016
Jan 2017
Jun 2017
Class I
Quota Blend

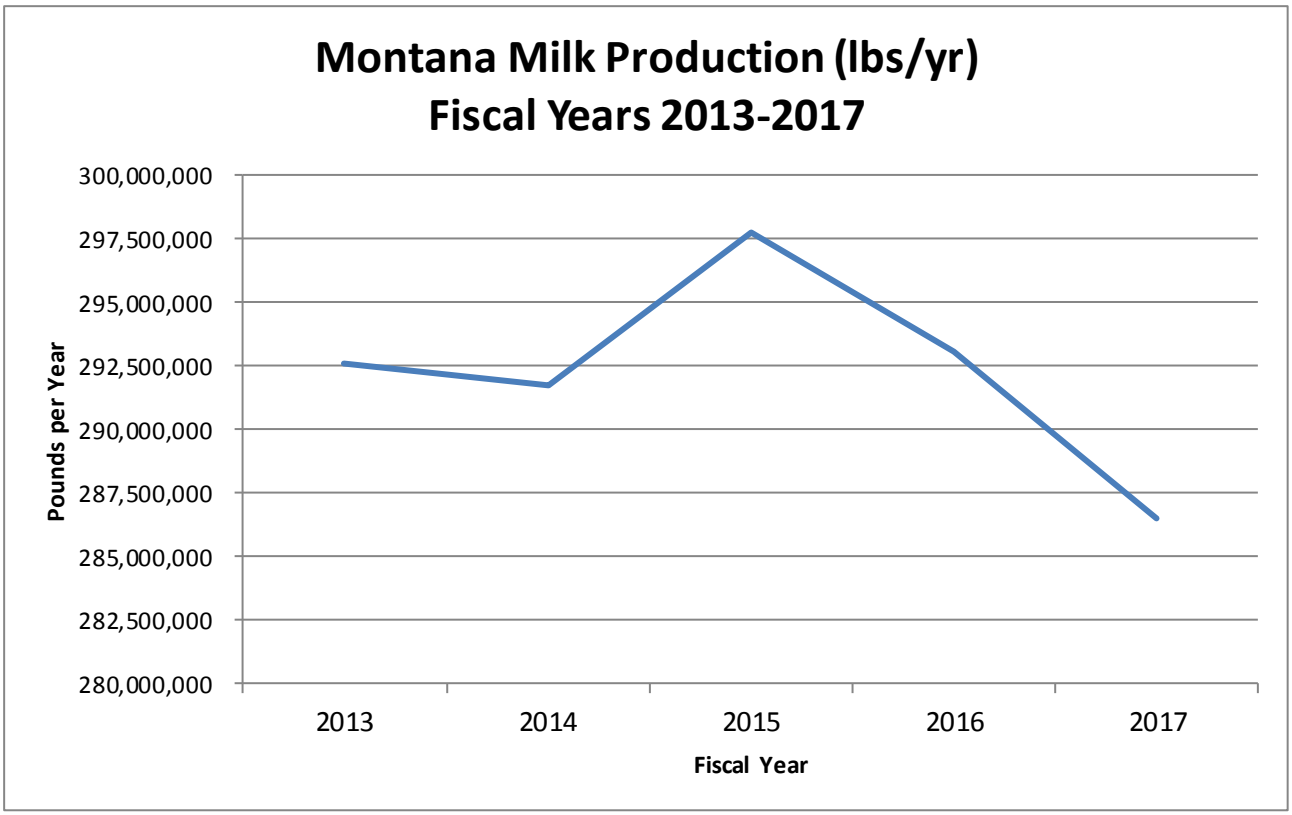

Monthly Skim Price ($/lb)
Fiscal Years 2013-2017
$0.25
$0.20
$0.15
$0.10
$0.05
$/lb
Jul 2012
Jan 2013
Jan 2014
Jan 2015
Jan 2016
Jan 2017
Jun 2017
Class I
Quota Blend

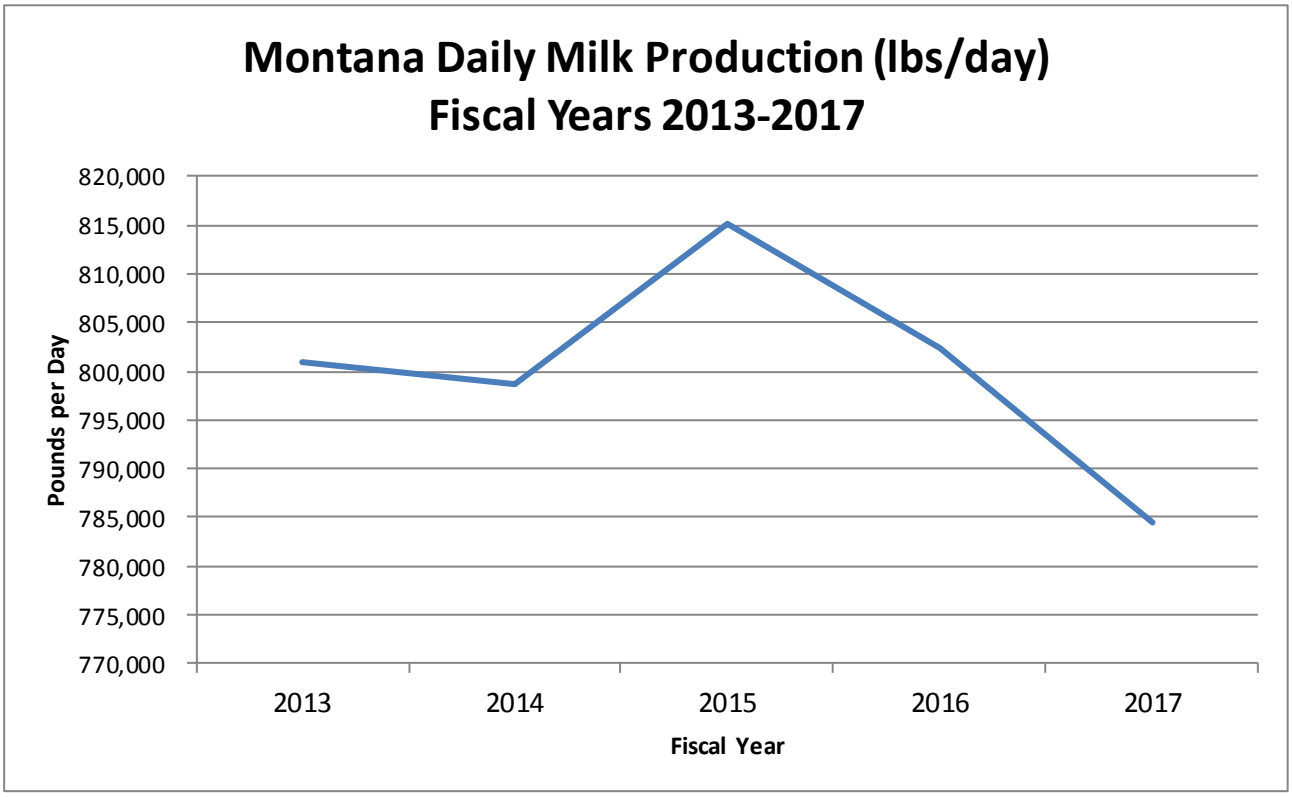
MONTANA MILK PRODUCTION

Dairies that participate in Montana's pool marketing system account for most of Montana's milk production. These dairies supply milk to Darigold's processing plant in Bozeman; Meadow Gold's processing plants in Great Falls and Billings. Montana Correctional Enterprise's dairy and processing plant in Deer Lodge are also included in pool statistics. Dairies that are licensed as producer-distributors account for the rest of Montana milk production. The map on page 24 shows the counties in which dairies are licensed to operate in fiscal year 2018.

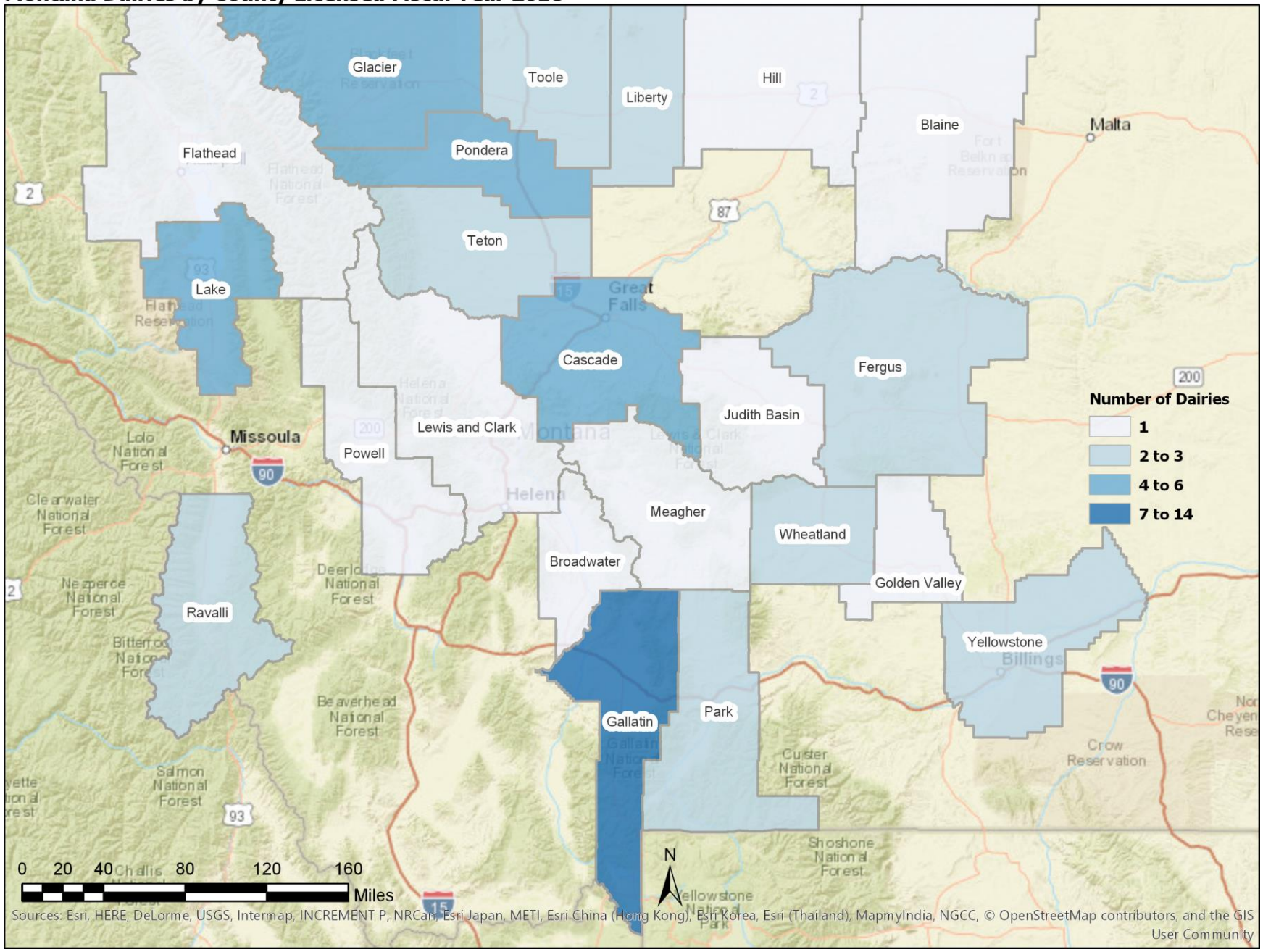
The following charts show the size of Montana's dairy herd and the number of dairies for fiscal year 2000 through fiscal year 2018 and total milk production (per year and per day) for fiscal year 2012 through fiscal year 2017. The size of Montana's milking herd is based on information provided by producers and producer-distributors in annual license applications. From fiscal year 2000 to fiscal year 2017, the number of cows being milk declined by nearly 15%, while the number of dairies declined by 56%. The average number of cows being milked per dairy increased from 92 cows per dairy in fiscal year 2000 to 179 cows per dairy in fiscal year 2017. The reduction in production is less than the reduction in herd size. Montana milk production in fiscal year 2017 is less than 3% lower than in 2000. Production in fiscal year 2017 was the lowest in the last five years and was approximately 2.5% lower than the average of the previous four years.




Montana Milk Production (lbs/yr)
Fiscal Years 2013-2017
300,000,000
297,500,000
295,000,000
292,500,000
290,000,000
287,500,000
285,000,000
282,500,000
280,000,000
Pounds per Year
2013
2014
2015
2016
2017
Fiscal Year


Montana Daily Milk Production (lbs/day)
Fiscal Years 2013-2017
820,000
815,000
810,000
805,000
800,000
795,000
790,000
785,000
780,000
775,000
770,000
Pounds per Day
2013
2014
2015
2016
2017
Fiscal Year

Montana Dairies by County Licensed Fiscal Year 2018



MILK IMPORTS / EXPORTS

In the discussion of Montana's milk imports and exports, the terms refer to trade between Montana and other states, not international trade.

MILK IMPORTS

Bulk Milk

A provision in the Milk Control Act (81-23-302(10), MCA) specifies that distributors with processing facilities in the state shall *"whenever possible, purchase milk from Montana producers for the processing of products to be sold in this state if milk is available from Montana producers at the price set by the board."* In fiscal year 2017, pool handlers imported 25 million pounds of bulk unpasteurized milk, an average of nearly 2.1 million pounds per month. In comparison, Montana producers delivered over 280 million pounds of milk to pool handlers in fiscal year 2017, an average of nearly 23.4 million pounds per month.

The bulk milk imports are primarily attributed to Meadow Gold – Billings purchasing milk from Wyoming producers, processing the milk, and distributing it to the Wyoming market. Infrequently, pool handlers import bulk milk for other reasons, such as enabling a plant to be shut down during a holiday. Current levels of bulk milk imports are lower than packaged milk exports for any given month. As such, Montana is a net exporter of milk to Wyoming.

Packaged Milk

Packaged milk and dairy products are imported by both out-of-state distributors and in-state distributors. Montana imports approximately 29.4 million pounds of Class I fluid products and 15.0 million pounds of Class II fluid products.

Estimated Montana Packaged Product Imports – Fiscal Year 2017

Product Description	Imports (lbs)
Class I Fluid Products	29,409,893
Class II Fluid Products	15,013,443
	Imports (lbs milk equivalent)
Class II Uncultured Products *(ice cream & frozen yogurt)*	12,562,058
Class II Cultured Products *(cottage cheese, sour cream, yogurt)*	48,945,454
Class III Products *(cream cheese, cheese, butter)*	450,379,388

MILK EXPORTS

Montana exports include fluid products packaged in Montana's pool plants, bulk unpasteurized milk, and bulk cream collected by pool handlers. Montana's exports of bulk milk and packaged fluid products significantly exceed its bulk milk imports. In fiscal year 2017, packaged fluid products exported to out-of-state markets are not included in Montana Class I or Class II utilization; rather the products are classified as Montana Class III utilization, along with exports of bulk milk and bulk cream. With the adoption of rulemaking proposed in MAR 32-17-282, beginning with August 2017 sales, packaged fluid products exported to out-of-state markets will be classified as a Class I utilization and packaged fluid cream products exported to out-of-state markets will be classified as a Class II utilization.

Montana Milk Exports – Fiscal Year 2017

Product Description	Exports (lbs)
Bulk Cream	11,218,440
Bulk Milk	16,053,490
Packaged Fluid Products	110,781,888
Total	**138,053,818**

MONTANA POOL MARKETING SYSTEM

EXPLANATION OF POOLING & QUOTA SYSTEM

Montana Pool System

Montana's pool marketing system allows producers to receive uniform milk prices (for milk of equivalent butterfat content) based on the overall utilization of pool milk received by all of Montana's pool handlers, plus the Montana Correctional Enterprises dairy plant. Without the pool marketing system, an individual dairy's milk price would be completely dependent upon how the receiving plant utilized the milk. By having a pool marketing system, variation in blend prices (for milk of identical butterfat content) for producers delivering to different plants does not occur. Producers supplying an individual plant are not as exposed to the volatility of that plant's marketing "wins" and "losses".

Quota System

Montana's quota system was established in an effort to discourage overproduction that would depress blend prices. Montana's quota system establishes a $1.50/cwt differential in the price of milk produced "in quota" over the price of milk produced "in excess" of quota.

Excess production accounted for 4.02% of production in fiscal year 2017, down from 4.92% in fiscal year 2016. The decrease likely resulted from the sale of quota from dairies that went out of business in 2016 to dairies that likely used the quota to reduce the portion of their production that was in excess of quota. Dairies that closed in fiscal year 2017 reportedly sold their herds to out-of-state buyers.

Montana's quota system allows for additional quota to be allocated, but does not allow for outstanding quota to be reduced. An adjustment (increase) in quota happens when both of the following conditions occur: (1) less than 16.5% of quota milk is utilized in Class III and (2) quota milk utilized for Montana Class I and Class II products increases relative to two years prior. In calendar year 2016, approximately 40% of quota milk was utilized in Class III and quota milk utilized for Montana Class I and Class II products increased by 4.2 million pounds compared to 2014. Because of generally steady decline in Montana Class I and Class II utilization and steady levels of production, the last time there was an adjustment (increase) in quota was 2001.

With the adoption of rulemaking proposed in MAR 32-17-282, effective August 1, 2017, additional quota will be allocated when both of the following conditions occur: (1) more than 83.5% of non-surplus quota milk is utilized in Class I and Class II and (2) non-surplus quota milk utilized for Montana Class I and Class II products increases relative to two years prior.

The provisions of Montana's administrative rules allow for quota to be provided to a "new eligible producer" for a portion of production. For a new eligible producer, the following sales to a pool handler are treated as if the milk was quota milk: 20% of sales to a pool handler in

April – August and 35% of sales in September – March. If the new eligible producer purchases quota, the described assignment of quota is reduced by the amount of quota purchased. Producers are allowed to transfer quota. Per ARM 32.24.502(8), producers may lose quota if delivery of milk to pool handlers is discontinued for over 90 consecutive days. If such producer's quota is not transferred within the 90-day period, it is forfeited. Forfeited quota is allocated to all remaining eligible producers on the following May 1st if the total unassigned quota is 500 lbs/day or more.

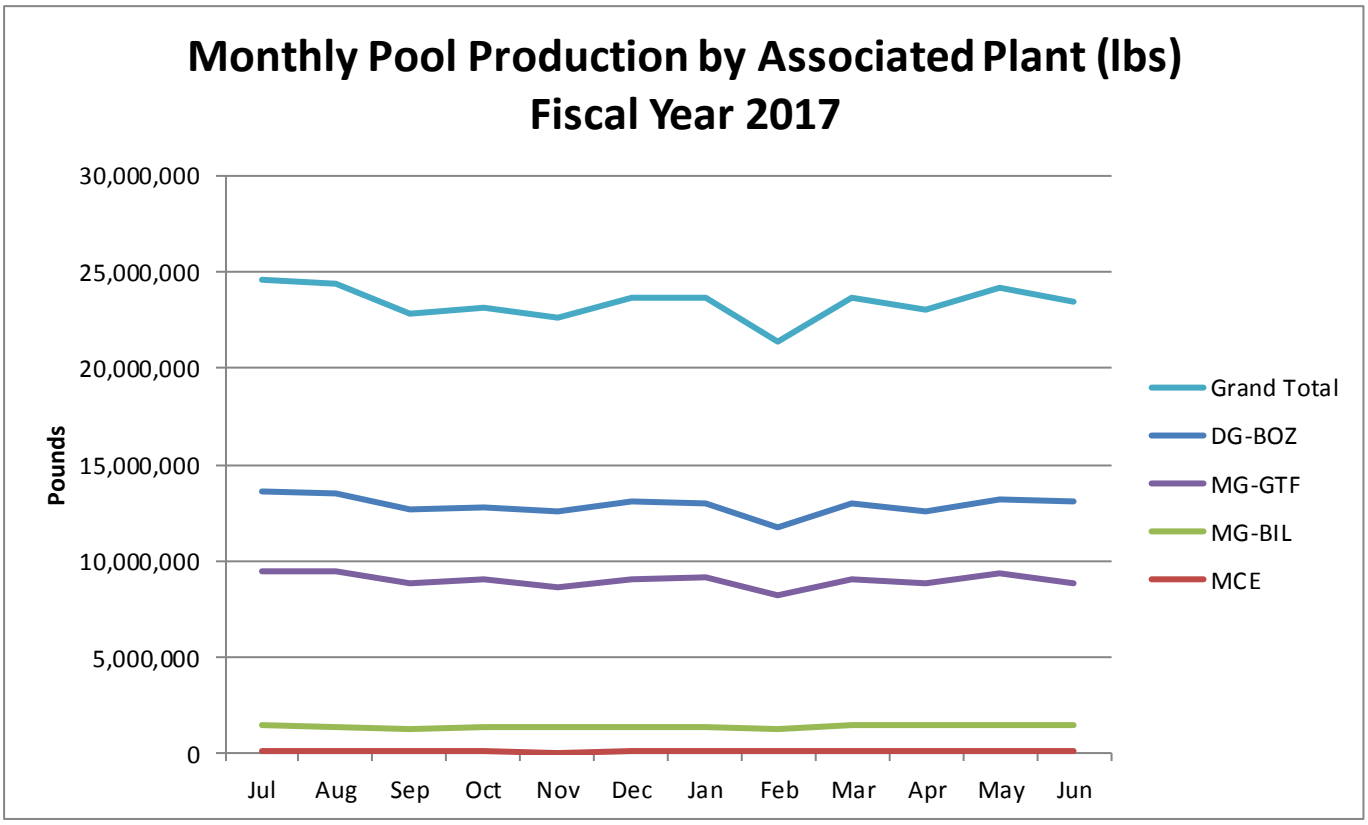
POOL PRODUCTION

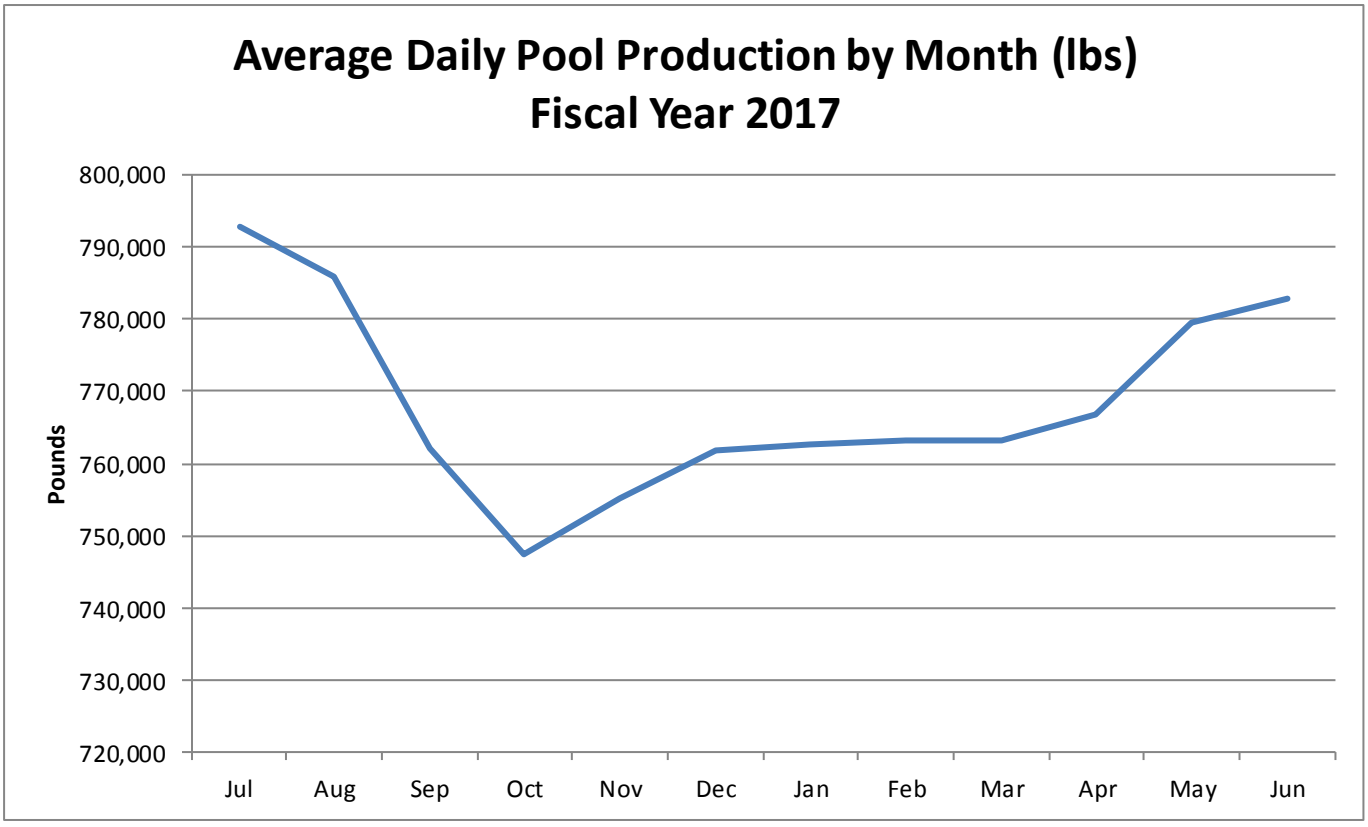
In fiscal year 2017, 61 dairies produced and delivered milk to three pool handlers, plus the Montana Correctional Enterprises plant. The following table shows the Montana milk pool's annual production, average butterfat content, weighted average pool price, and gross receipts for fiscal year 2012 through fiscal year 2017. Pool production in fiscal year 2017 was the lowest in the six-year period. The butterfat content was near the average for the time period. In fiscal year 2017 (relative to fiscal year 2016), production decreased by 2.4%; the weighted average price increased by 6.3%; and annual gross receipts increased by 3.8%.

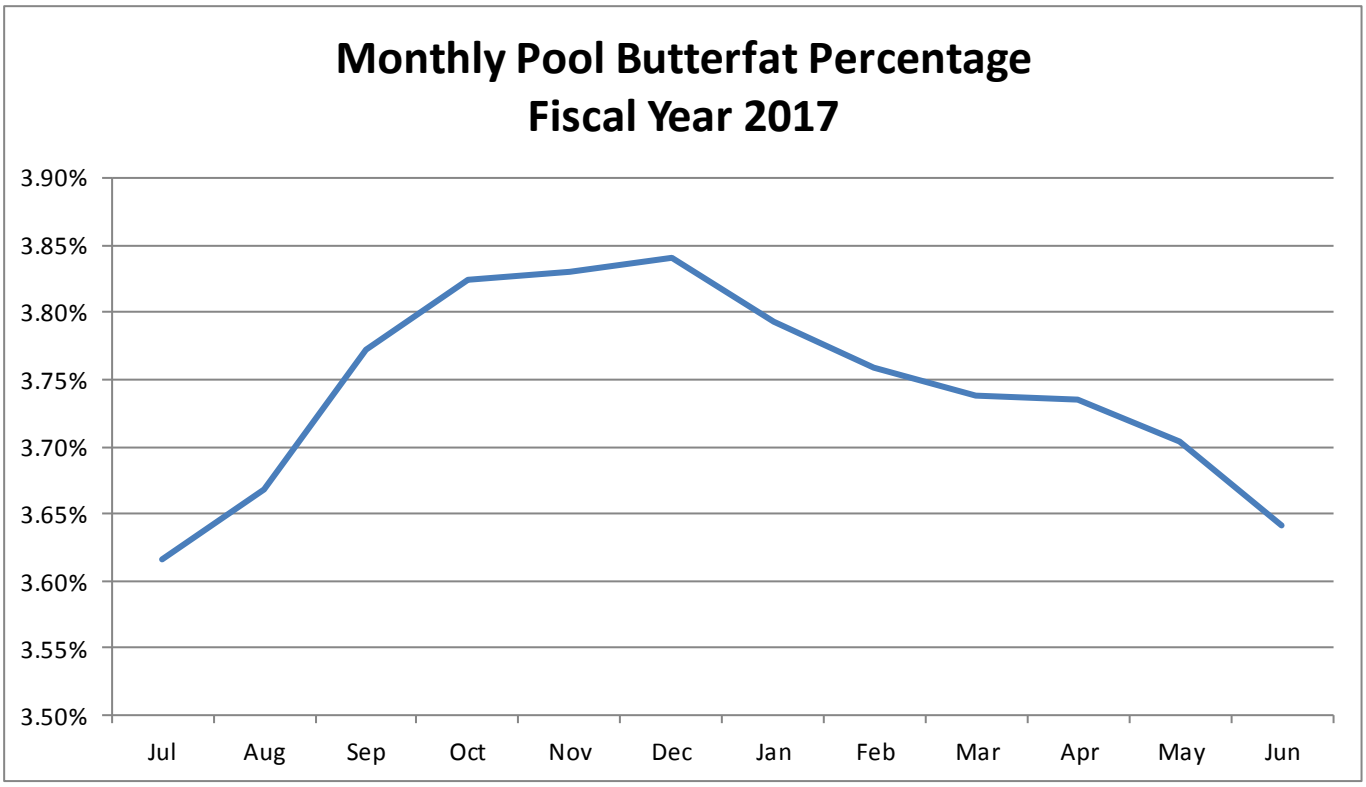
Summarized Pool Information: Fiscal Year 2012 – 2017

Fiscal Year	Production (lbs)	Butterfat (%)	Weighted Average Price ($/cwt)	Annual Gross Receipts ($)
2012	288,601,895	3.69%	$18.71	$53,989,689
2013	288,126,166	3.73%	$19.01	$54,782,758
2014	286,550,985	3.78%	$21.79	$62,446,124
2015	292,232,179	3.73%	$19.93	$58,232,010
2016	287,449,454	3.72%	$15.39	$44,251,077
2017	280,582,982	3.74%	$16.36	$45,912,344

The following charts provide information from fiscal year 2017 about pool production on a monthly basis to show seasonal aspects of production. The weight of monthly production is impacted by the number of days of the month and by dairy cow productivity. The first chart shows milk received from pool producers at each of Montana's pool handlers plus the Montana Correctional Enterprises plant. Dairy cows experience what is referred to as the "spring flush" and produce more milk in the spring and early summer months as the second chart shows. Inverse to daily production, butterfat content is highest in the fall months.


Monthly Pool Production by Associated Plant (lbs)
Fiscal Year 2017
30,000,000
25,000,000
20,000,000
15,000,000
10,000,000
5,000,000
0
Pounds
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Grand Total
DG-BOZ
MG-GTF
MG-BIL
MCE

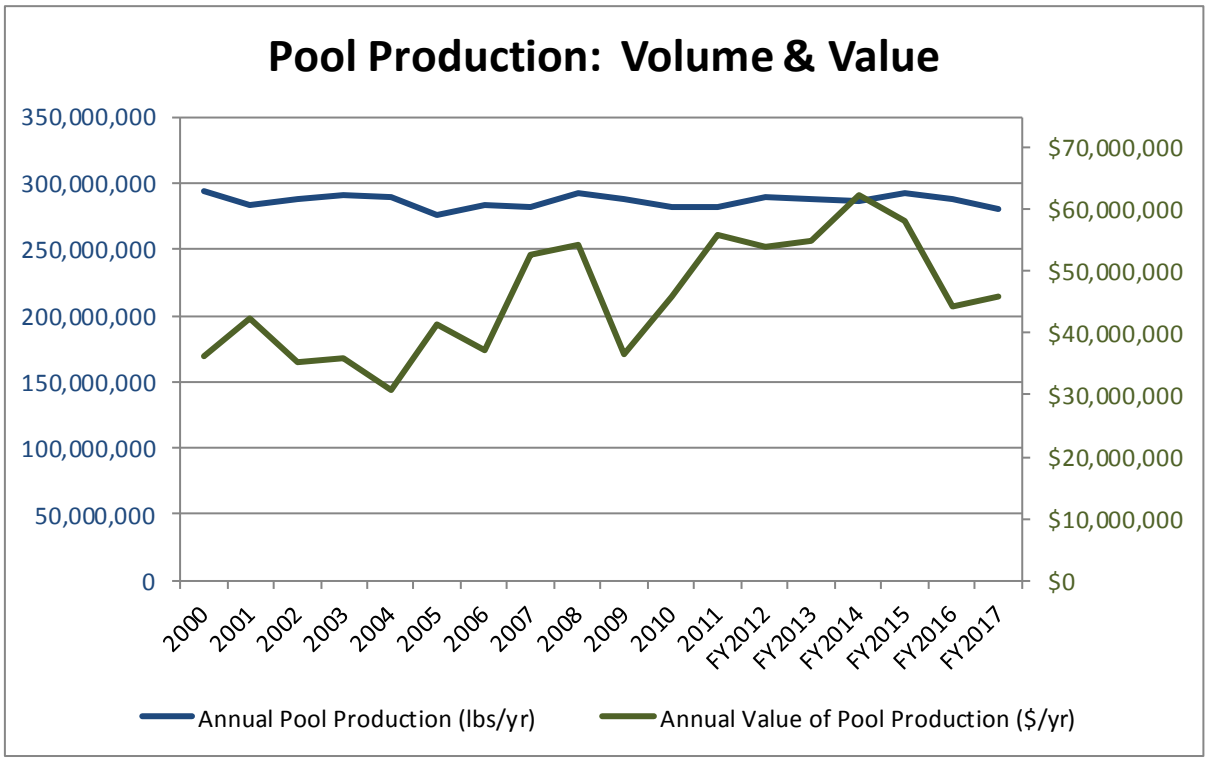

Average Daily Pool Production by Month (lbs)
Fiscal Year 2017
800,000
790,000
780,000
770,000
760,000
750,000
740,000
730,000
720,000
Pounds
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun

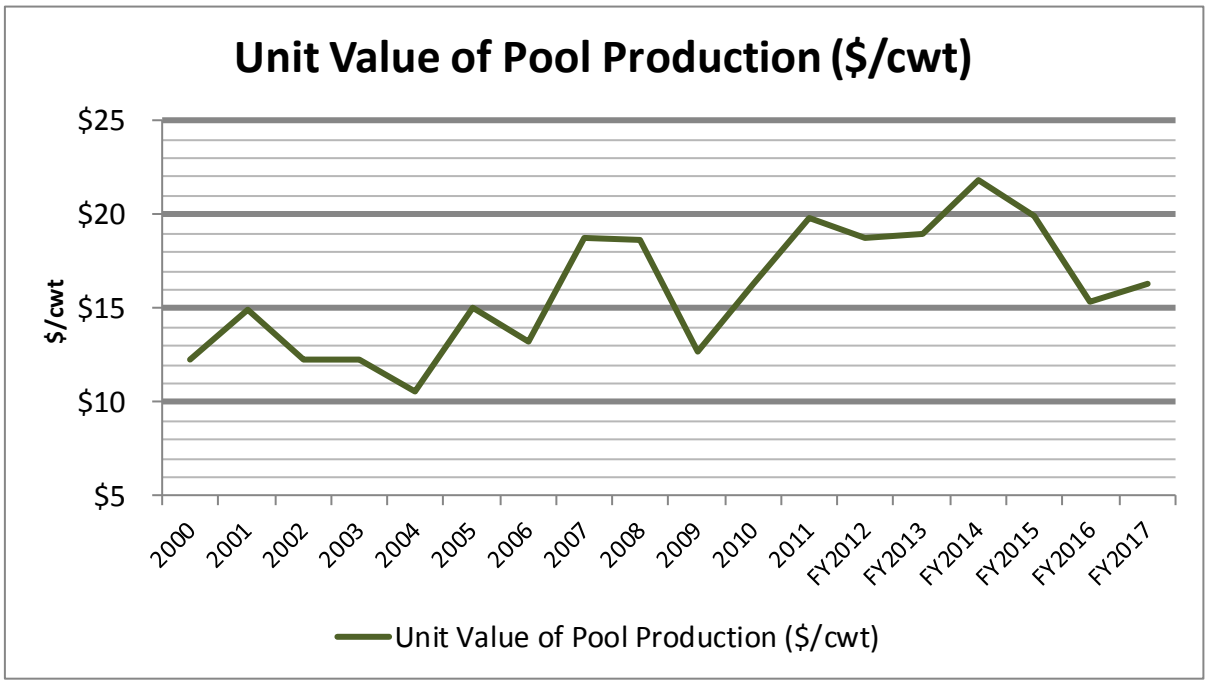


THE PRICE/COST OF POOL MILK

Montana's pool marketing system establishes how pool dairies are compensated for milk. The Milk Control Bureau announces minimum prices prior to the month of production. Pool handlers report milk receipts and utilization information by the 8th day following the month of production; after which, the bureau uses the information to calculate quota and excess prices and calculate amounts to be paid to pool producers.

The following charts provide perspective on volume of pool production, annual value pool milk sold to pool handlers, and annual weighted average unit price paid for pool production from 2000 through fiscal year 2017. Overall, production was relatively stable during the time period. The value of production has trended upward and directly reflects milk prices. Milk prices have roughly followed the path of other commodities (such as feedstuffs) during the time period, increasing dramatically in 2007 and plunging in 2009 before recovering to price levels similar to the 2007 – 2008 time period, setting an all-time record high in 2014, and decreasing in 2015 and 2016 before beginning to recover and stabilize in the last half of 2016 and first half of 2017. The decline in milk prices in 2015 – 2016 lagged declines of most other agricultural commodities.





The following table identifies the key factors that determine the value of Montana pool milk. The production and utilization factors result in a poolwide utilization value calculated for butterfat and skim produced by pool dairies. The surplus sale factors allow for adjustments to the value of pool milk that reflect market and production dynamics. "Surplus" milk is defined

by ARM 32.24.520(8) as milk received under contract by a pool handler that exceeds the pool handler's Montana Class I and Class II needs and excludes cream derived from processing. Surplus milk may be milk sold to another pool handler or sold to out-of-state markets in bulk or packaged form. To the extent that the value of surplus milk sold to out-of-state markets exceeds the Montana Class III value of that milk, the difference is added to the poolwide skim utilization value. To the extent that the value of surplus milk sold to out-of-state markets is less than the Montana Class III value of that milk, the difference is subtracted from the poolwide skim utilization value. Freight for the transportation of bulk surplus milk, whether to other pool handlers or to out-of-state processors, is subtracted from the poolwide skim utilization value.

Beginning in August 2017, administrative rules become effective that result in some changes in how the initial utilization value is adjusted for surplus sales and sales of milk between pool plants. Under these new and amended rules, surplus milk is initially valued based on the actual class of utilization, as opposed to surplus milk sales being solely a Class III utilization. The rules provide for negative adjustments to the Class I utilization value for surplus sales of Class I packaged milk. The resultant utilization value of surplus sales of bulk milk classified within any class of utilization is still based on the actual value received less freight costs. Milk shipped between pool handlers will no longer be surplus milk, but the freight costs for the shipments continues to be deducted from the pool utilization value.

Key factors That Determine the Value of Montana Pool Milk

Production & Utilization Factors

- poolwide production and butterfat content
- announced minimum prices for milk and butterfat for each class
- percentage of butterfat and skim utilized in each class

Surplus Sale Factors

- volume of milk exported as packaged surplus milk and margin between the value received and the Montana classified value of the milk
- volume of milk exported as bulk surplus milk, the sale proceeds received relative to the Montana classified value of the milk, and the freight costs of shipping the milk to out-of-state processors

Freight Charges for Intrapool Sales

- the volume of sales of bulk milk between pool handlers and shipment freight rates

Dairy Payroll: Quota / Excess Prices

The price an individual dairy is paid for milk sold for a given month is based on whether the milk produced within that dairy's quota right and the extent to which it is over quota. Quota milk production is priced $1.50/cwt higher than excess production. Payment is based on each dairy's actual butterfat content.

The quota price is determined by calculating the statewide pool's value of skim milk and butterfat (utilization of skim and butterfat multiplied by minimum prices for the associated class of milk). The gain/loss of sales of surplus milk are added to pool skim value, and surplus milk sales' out-of-state and in-state hauling charges are subtracted from the pool's skim value. Further adjustments are made to the pool skim value that relate to adjustments for the producers' settlement fund: a negative adjustment of $0.12/cwt multiplied by quota milk receipts and a positive adjustment equal to one-half of the prior month's producer settlement fund balance. The adjusted pool-wide skim value is divided by skim receipts, and the pool-wide butterfat value is divided by butterfat receipts. Additional calculations are made to create a $1.50/cwt differential between the quota milk price and excess milk price (at 3.5% butterfat).

The following table provides a schematic of the sequence for determining prices to be paid to individual dairies for milk produced in quota and milk produced in excess of quota. The quota price shown for milk in the Montana minimum price charts is for milk with 3.5% butterfat.

Skim Portion of Milk	**Butterfat Portion of Milk**
Classification by Utilization for Skim & Butterfat: I, II, III	
Poolwide Skim Utilization Value *(classified announced prices multiplied by weight of Class I, II, III utilization)* Adjustments to Skim Utilization Value: + / - Surplus Sale Gain (Loss) - Surplus Freight Costs - Intrapool Sales Freight Costs + / - Settlement Fund Adjustments = Adjusted Poolwide Skim Utilization Value	Poolwide Butterfat Utilization Value *(classified announced prices multiplied by weight of Class I, II, III utilization)*
Adjustments to create Quota / Excess Price Differential ($1.50/cwt)	
Skim & Butterfat Quota / Excess Unit Prices ($/lb)	
Blend Price to be Paid to an Individual Dairy Based Upon Actual Butterfat Content	

Utilization of Pool Receipts

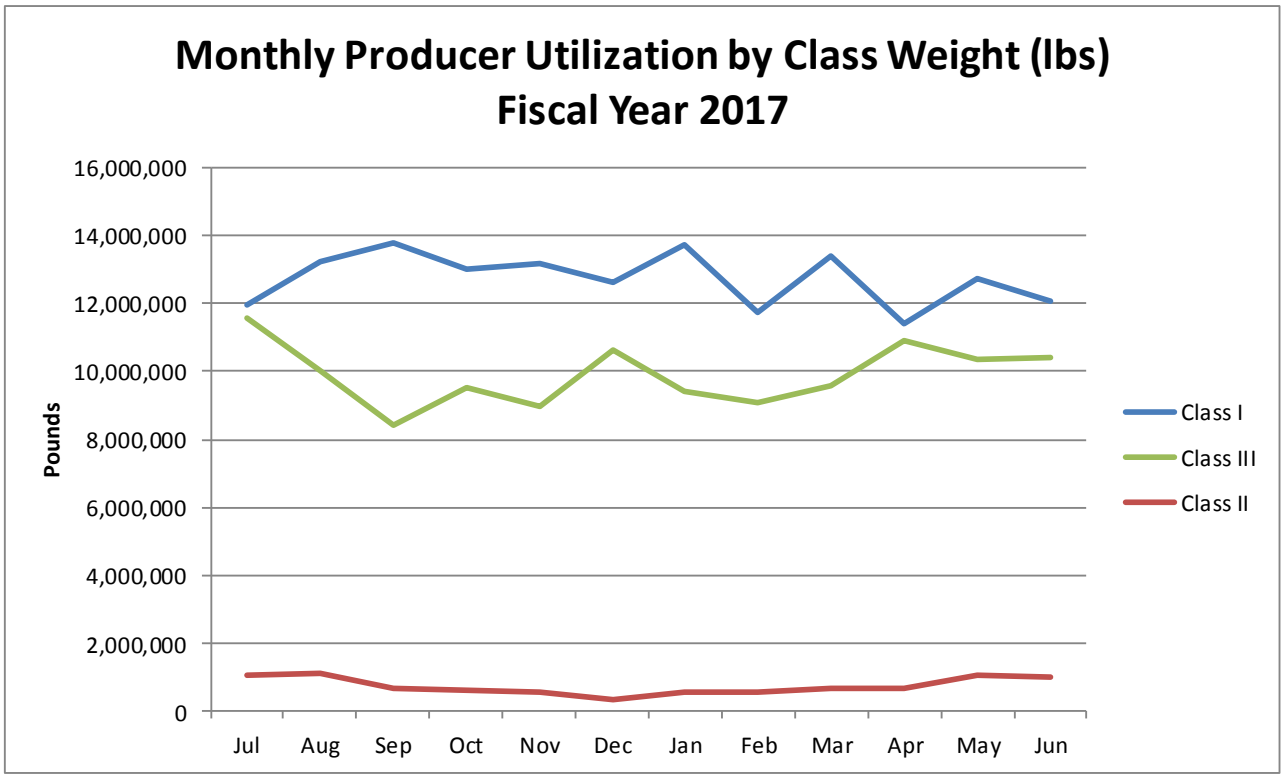
Pool handlers submit reports to the Milk Control Bureau that are used to determine the utilization of pool milk received. These reports show the weight of milk and butterfat used to produce products in the various classes of milk utilization. Ending inventory of packaged milk is reported as a Class I utilization, and ending inventory of bulk milk is reported as a Class III utilization. Milk dumped for reasons that are uncommon and infrequent are classified as Class III utilization. Shrinkage, which is the difference between milk receipts and milk accounted for as being utilized for products, ending inventory, or justifiably dumped milk is classified as a Class III utilization; except any shrinkage in excess of two percent of receipts is classified as Class I utilization. The purpose of classifying shrinkage exceeding the two percent threshold is

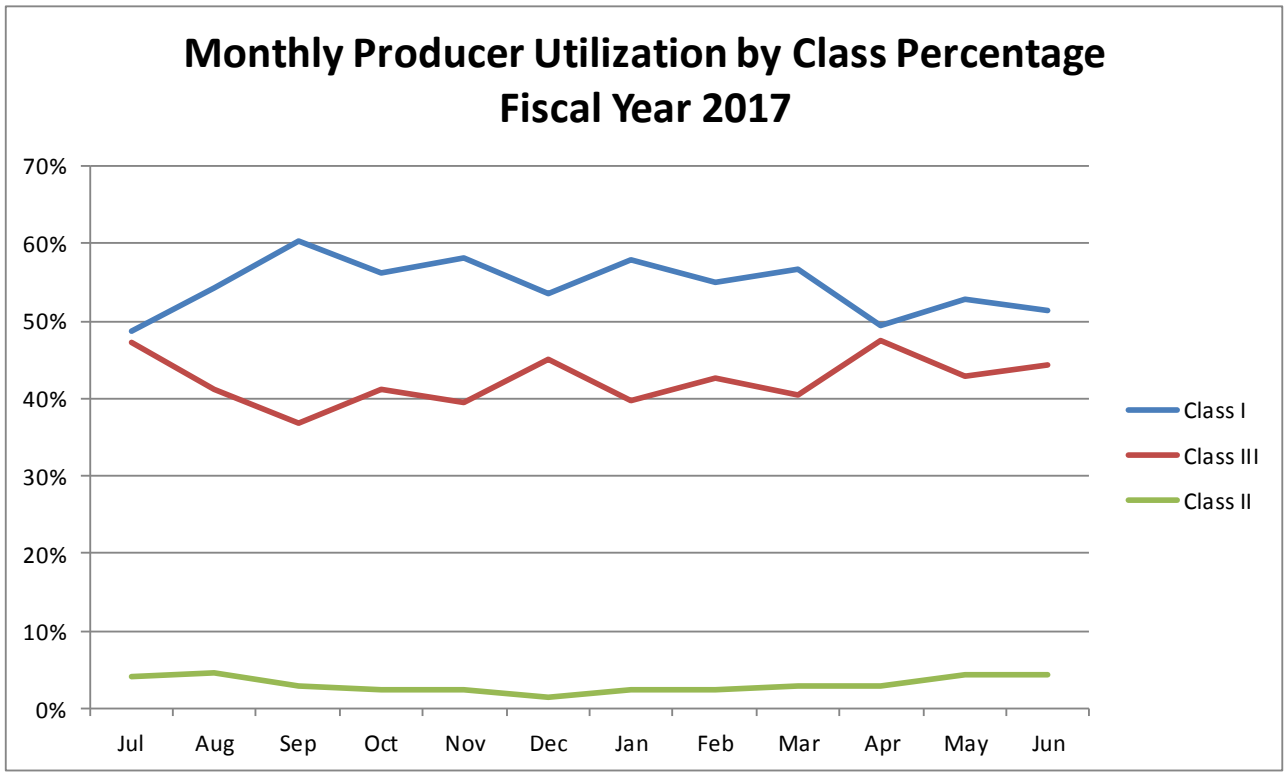
to encourage pool handlers to be efficient in processing milk and to discourage the potential moral hazard of deliberate dumping milk to lower blend prices. The classification of surplus milk sold in bulk to other pool handlers is based on the receiving pool handler's utilization of the milk.

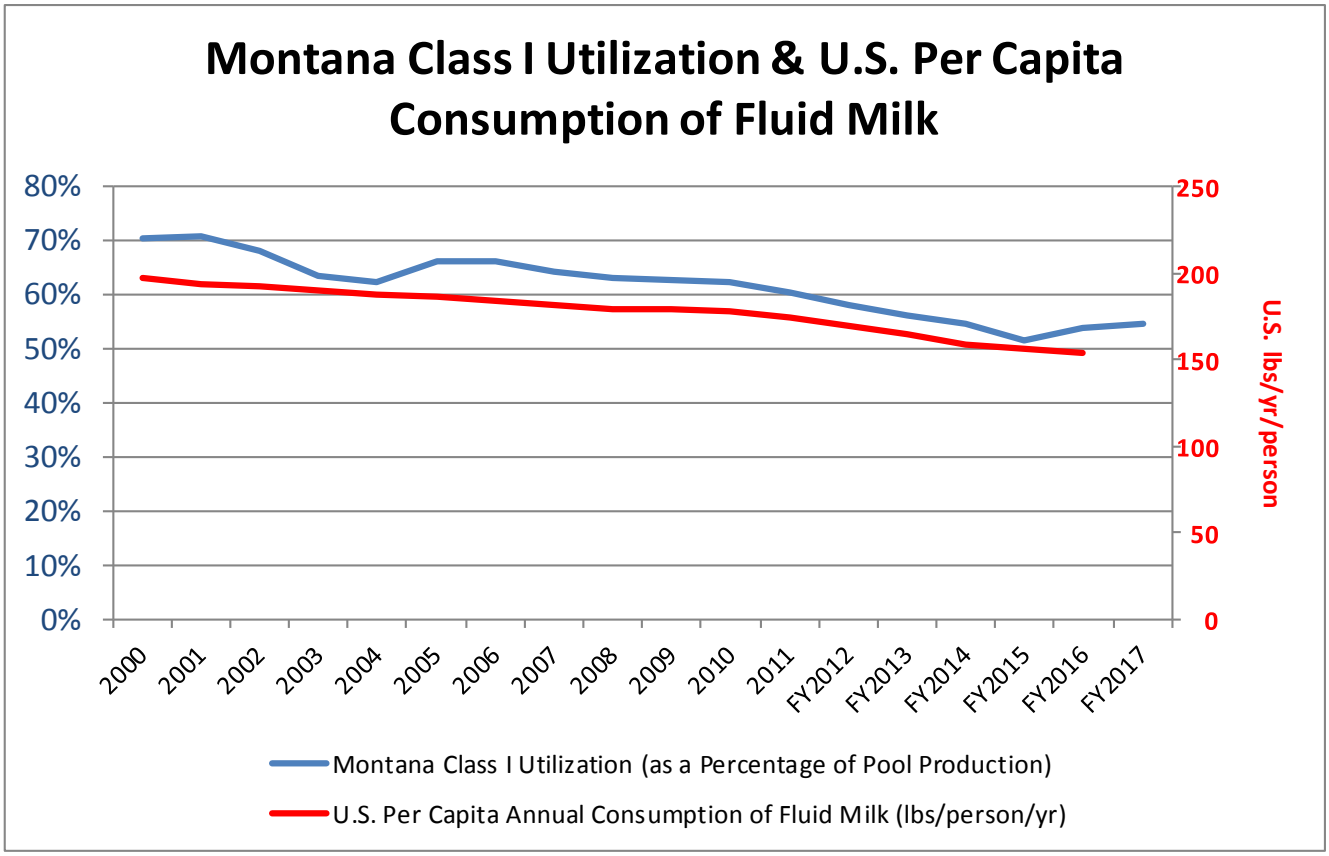
Several trends can be observed about Montana dairy receipts and plant utilization. Class I milk sales are highest (as a percentage of production) during the months schools are in session. The closing of schools in late May or early June corresponds with peak production in the spring and early summer months resulting in a significant seasonal increase of bulk milk exports (classified as Class III milk). Class II utilization peaks in the summer months and is driven by sales of ice cream and ice cream mix products. The following two charts show monthly poolwide utilization of milk in terms of pounds per month and percentage of production. Viewing utilization by percentage of production eliminates variation that is based on the number of days in a month. The third chart shows the percentage of Montana pool milk utilized as Montana Class I milk and the per capita consumption of fluid milk in the United States since 2000. The USDA Economic Research Service was the source of per capita consumption information (http://www.ers.usda.gov/data-products/dairy-data, accessed September 7, 2017). Since 2000, pool production has been relatively stable, and Montana's population increased from approximately 904,000 in 2000 to 1,043,000 in 2016 according to the U.S. Census Bureau. The trend for the percentage of pool milk utilized as Montana Class I milk is one of decline, which corresponds to the trend of declining per capita consumption of fluid milk in the United States. Montana Class I utilization has declined from accounting for 70.4% of pool production in 2000 to 51.4% in fiscal year 2015. Since fiscal year 2015, the percentage of pool production utilized as Montana Class I milk increased by about 3%. This is a function of decrease in total pool production and small increase in total Class I utilization compared to 2015. Annual U.S. per capita consumption of fluid milk has declined from 196 pounds in 2000 to 154 pounds in 2016. Other potential factors influencing the decline of the Montana Class I utilization percentage include increased availability and possibly market share of ultrapasteurized products (such as organic milk, lactose-free milk, and other specialty or branded products) that are imported into the state; loss of market share to a myriad of new beverage products, including plant-based milk substitutes; and changes in food distribution systems that have led to an increase in out-of-state distributors supplying Montana stores. Class II manufacturing in Montana accounts for a relatively small amount of utilization. Because Montana dairy processors do not utilize a large percentage of pool milk for production of Class II and Class III products, the increased Montana Class III utilization of pool milk through fiscal year 2017 is occurring through exports of "surplus" bulk milk and packaged fluid milk.

Beginning in August 2017, administrative rules become effective that result in sales of surplus packaged fluid milk being classified as a Class I utilization instead of a Class III utilization. As a result, Class I utilization will increase by roughly 30%. The associated increase in Class I utilization will be subject to surplus sales adjustments that will decrease the utilization value of surplus sales of Class I packaged milk by $2.55/cwt for sales to markets contiguous to Montana and by $3.05/cwt for sales to markets non-contiguous to Montana. Bureau analysis showed

that the rule change does not impact overall pool value but does increase the butterfat blend price and decrease the skim blend price.

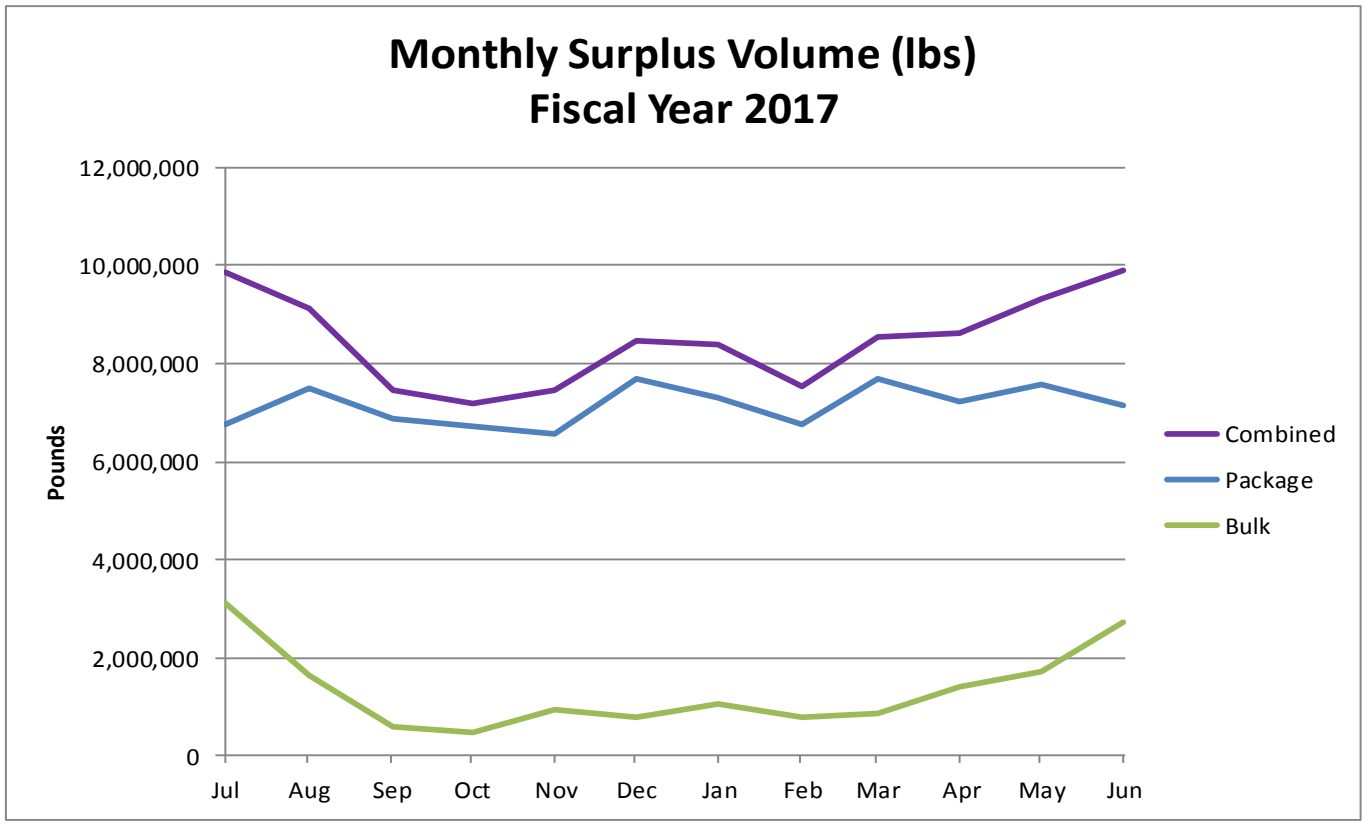


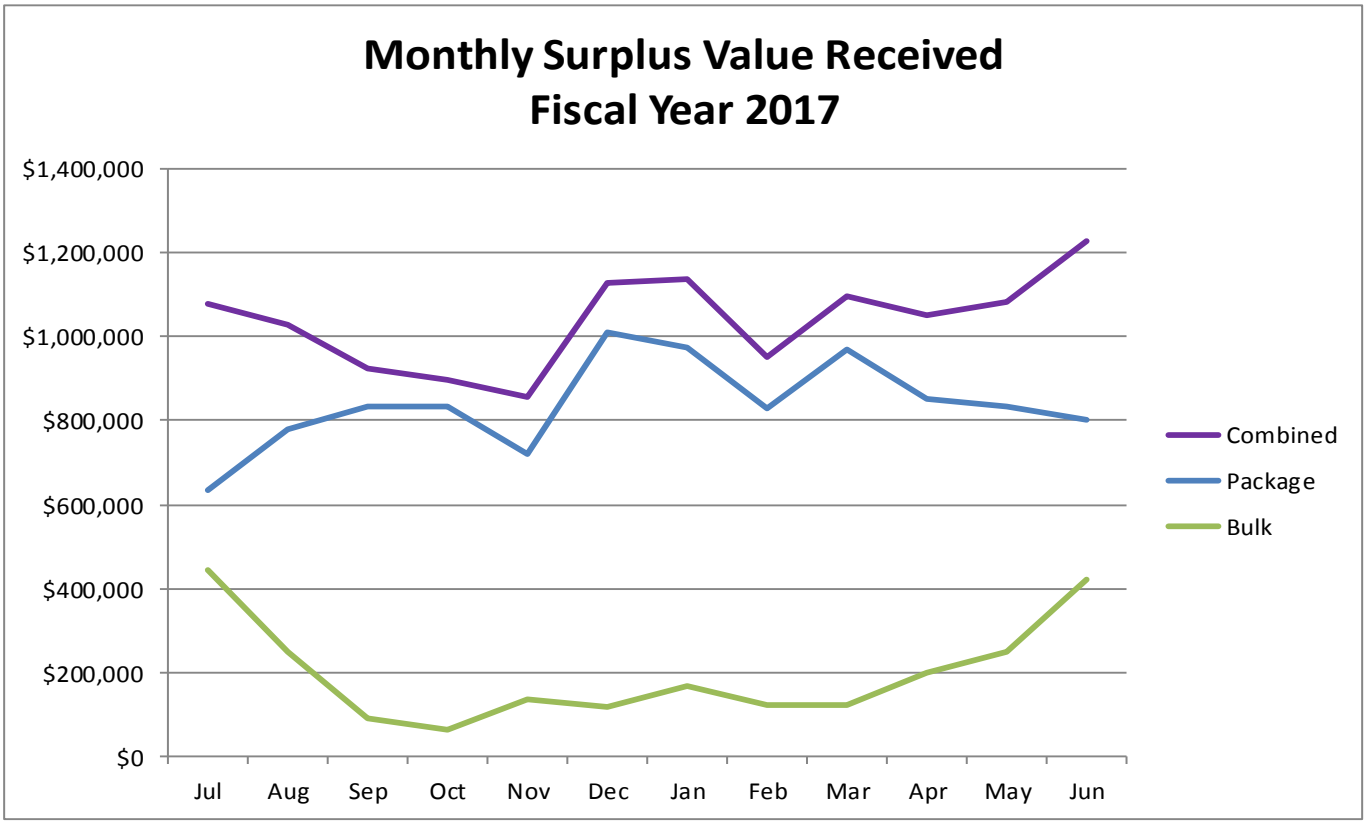


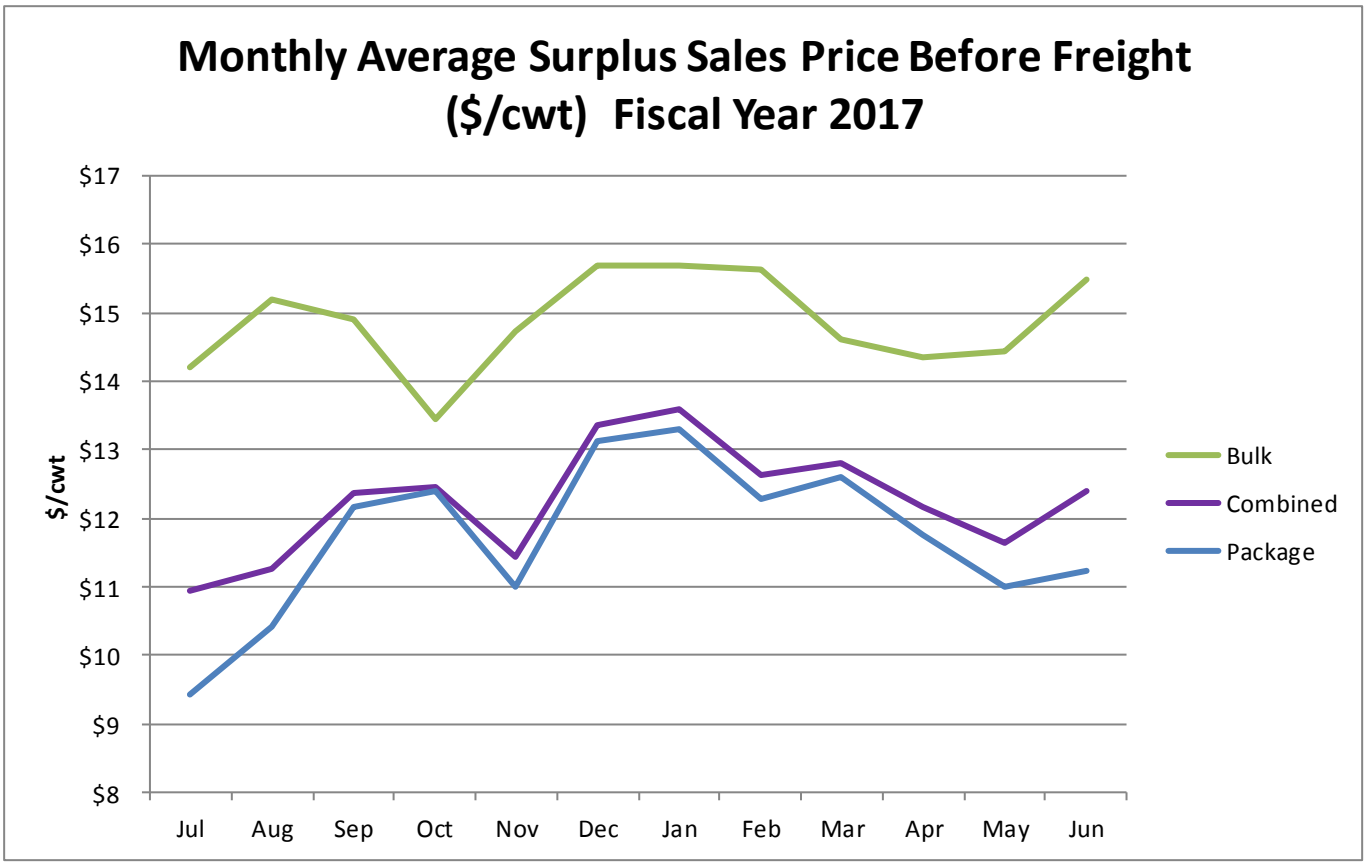


Sales of Surplus Milk

The following three charts show the monthly volume and value received for sales of surplus milk by pool handlers and the unit price received for surplus milk sales (before freight). Bulk surplus sales peak in the summer months because less Montana milk is utilized for Class I milk sold to schools and because Montana production peaks in late spring to early summer. Pool handlers report a value received for sales of surplus packaged milk at prices that relate to the Federal Order Base Class I price and report actual proceeds for sales milk sold in bulk. It is not uncommon for the unit price for surplus milk sold in bulk to exceed the unit price for value received for packaged surplus milk because the butterfat content of packaged milk tends to be less than 2%, whereas the butterfat content of bulk milk tends to exceed 3.5%. The unit prices shown in the third chart are before deductions for freight. In fiscal year 2017, out-of-state hauling charges for bulk milk averaged $2.87/cwt. No haul charges are deducted from the value received for surplus packaged milk.


Monthly Surplus Volume (lbs)
Fiscal Year 2017
Pounds
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
0
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Combined
Package
Bulk


Monthly Surplus Value Received
Fiscal Year 2017
$1,400,000
$1,200,000
$1,000,000
$800,000
$600,000
$400,000
$200,000
$0
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Combined
Package
Bulk



Net Gain on Sale of Surplus Milk to Out-of-State Markets

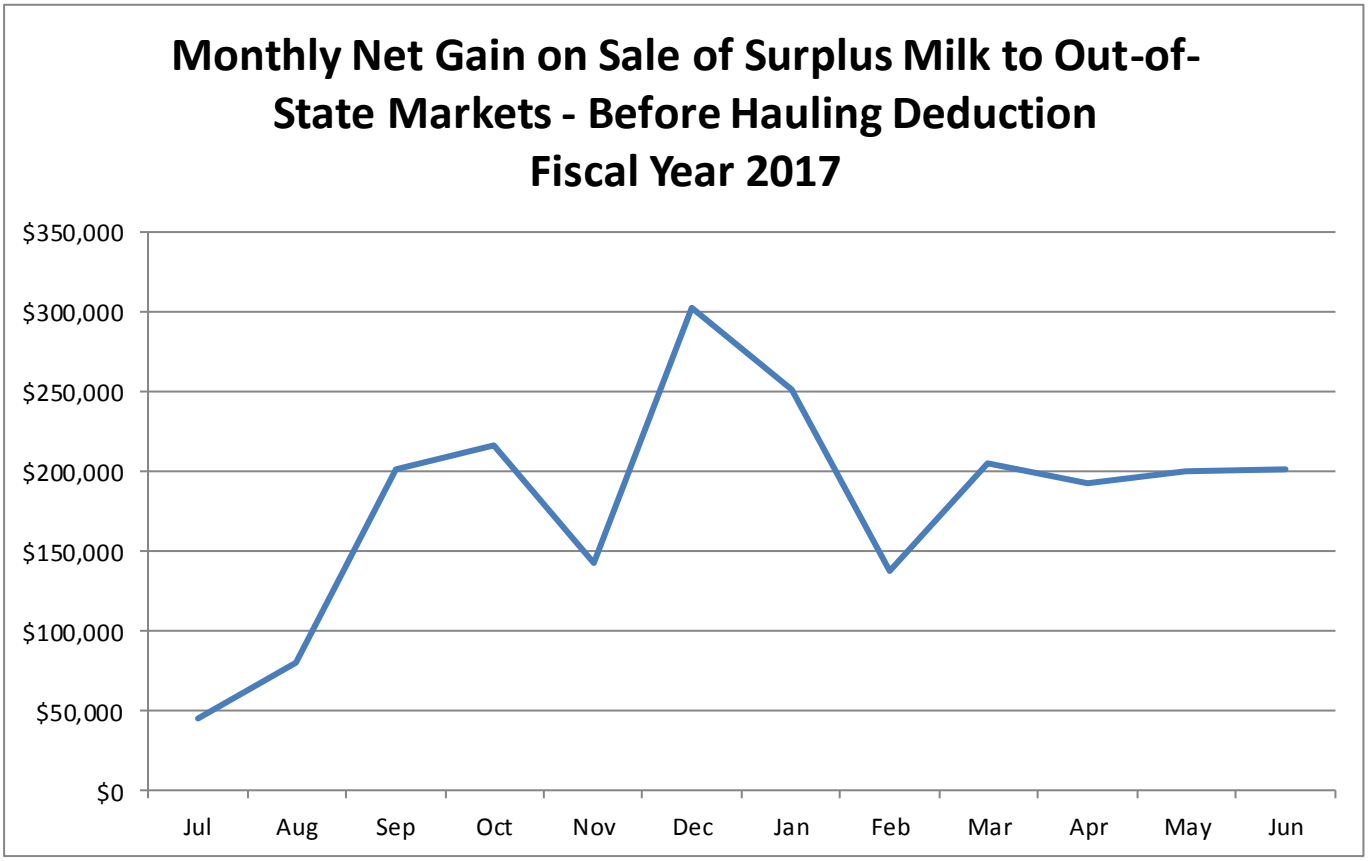
Pool handlers report surplus sales of packaged milk at prices that relate to the Federal Order Base Class I price and no haul charges are deducted against the value received. Pool handlers pay into the pool the difference between the value received and the Montana Class III value of the milk. There is virtually always a gain on sale of packaged surplus milk relative to the Montana Class III value.

Beginning in August 2017, administrative rules become effective that result in sales of surplus packaged fluid milk being classified as a Class I utilization instead of a Class III utilization. The surplus sales adjustment to the associated Montana Class I utilization value will be a reduction of $2.55/cwt for sales to markets contiguous to Montana and a reduction of $3.05/cwt for sales to markets non-contiguous to Montana.

Pool handlers must report the sales price of bulk milk sold to out-of-state markets and pay into the pool the difference between the value received and the Montana Class III value of that milk after subtracting hauling charges. Circumstances may result in the pool paying pool handlers if the value received plus hauling charges exceeds the Montana Class III value of the milk. With seasonally large supplies in other regions as well, it is not uncommon for bulk surplus sales in summer months to “cost” the pool. The fact that the volume of surplus packaged milk sales

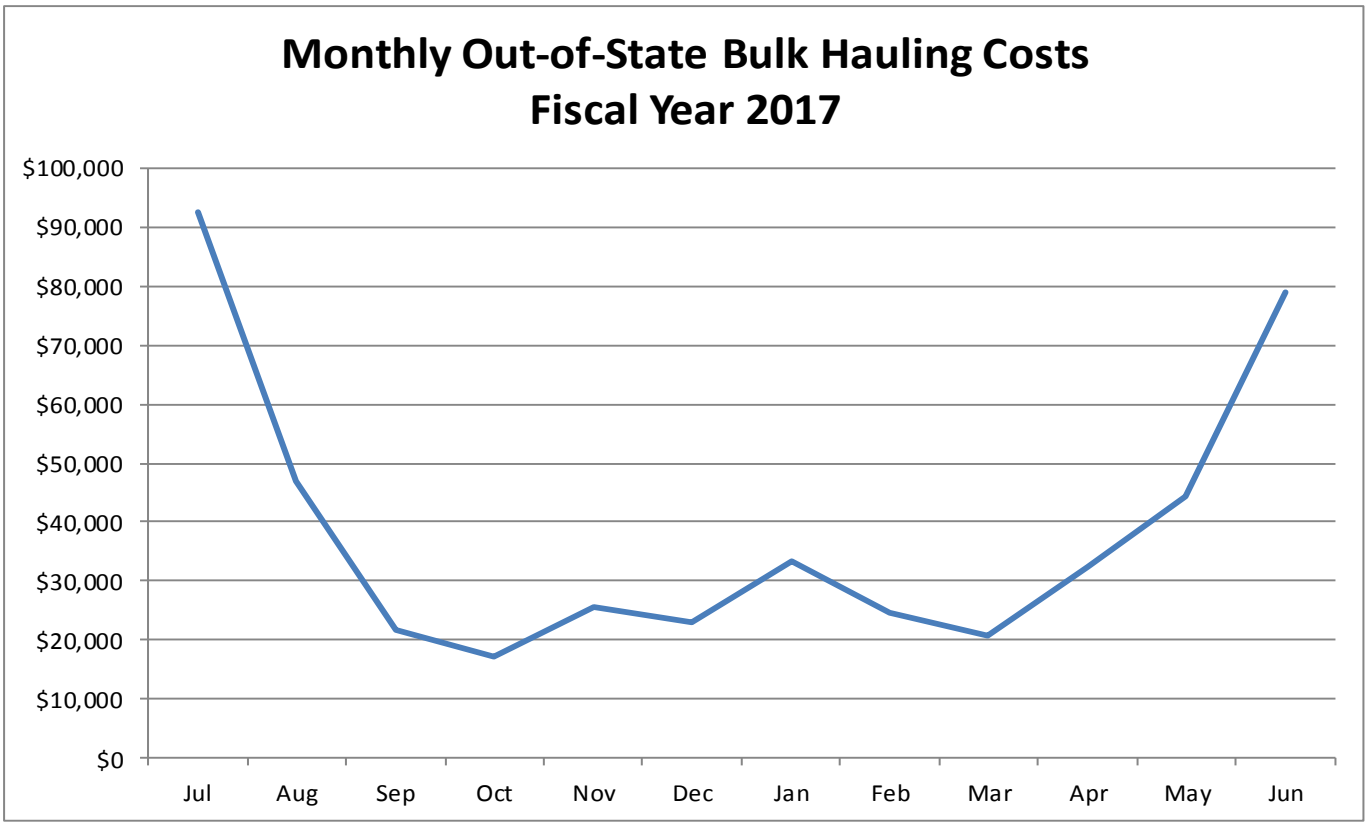
exceeded the sales of surplus bulk milk in every month helped assure that the total net gain before hauling was positive.

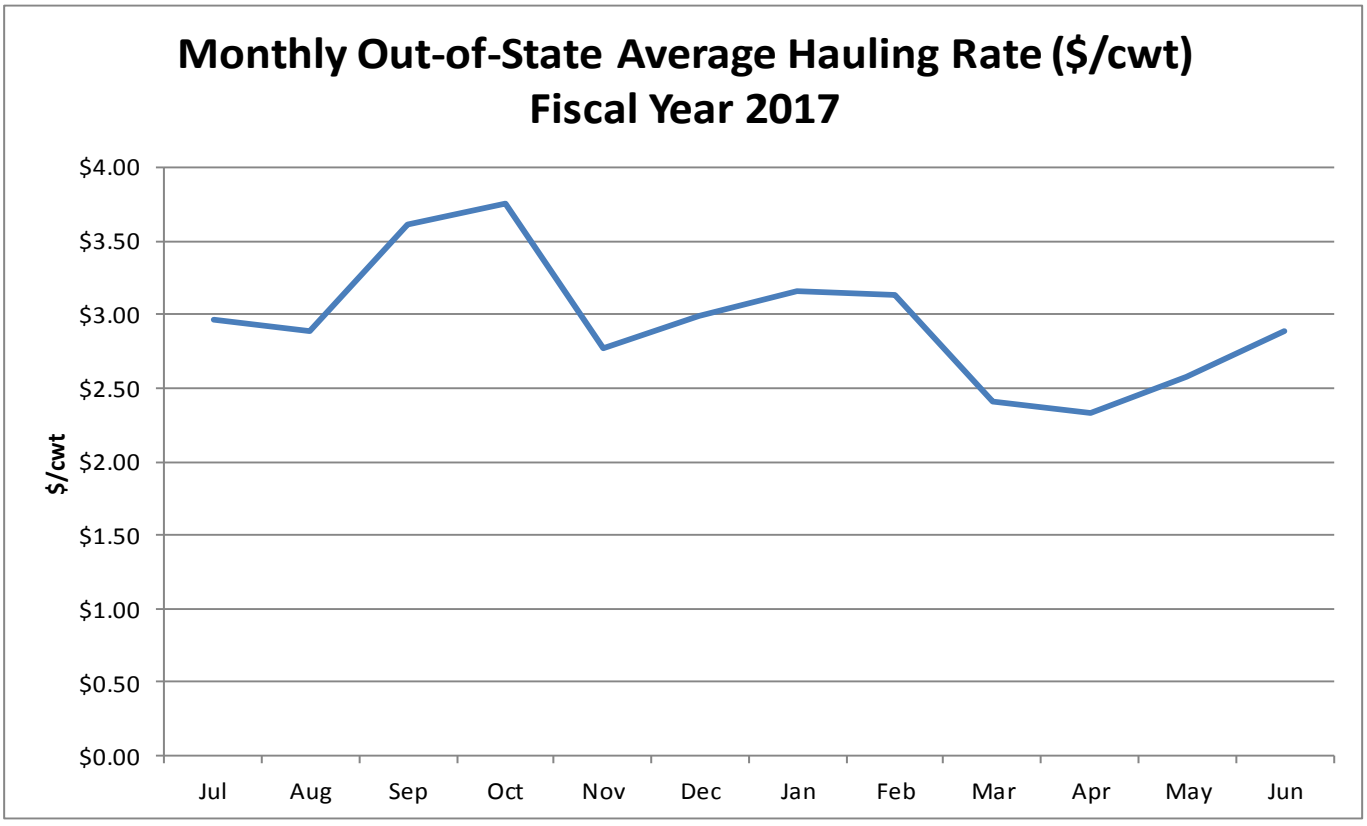
Beginning in August 2017, administrative rules become effective that result in the surplus sales of bulk milk being initially valued based on the actual class of utilization, as opposed to surplus milk sales being solely a Class III utilization. The resultant utilization value of surplus sales of bulk milk classified within any class of utilization is still based on the actual value received less freight costs.

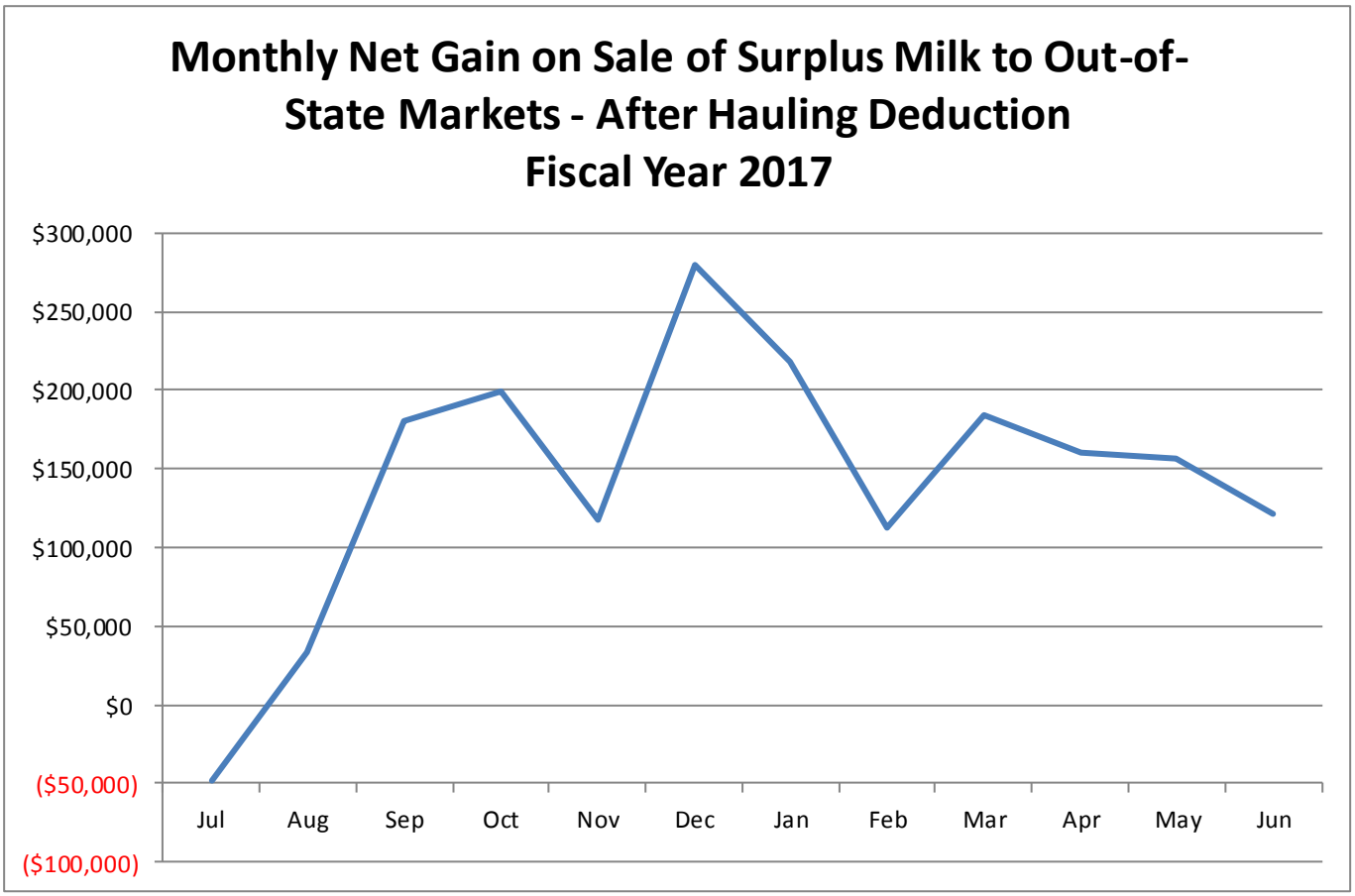


Freight Charges for Sale of Surplus Milk Sold in Bulk to Out-of-State Markets

The following two charts show freight costs for surplus milk sold in bulk to out-of-state markets in fiscal year 2017. Freight costs are primarily driven by volume of surplus milk sold in bulk. Other factors affecting freight costs include variation in freight rates tied to distance of hauling and the portion of the volume of sales of bulk surplus milk that were from Darigold, which realized notably lower per unit freight costs.

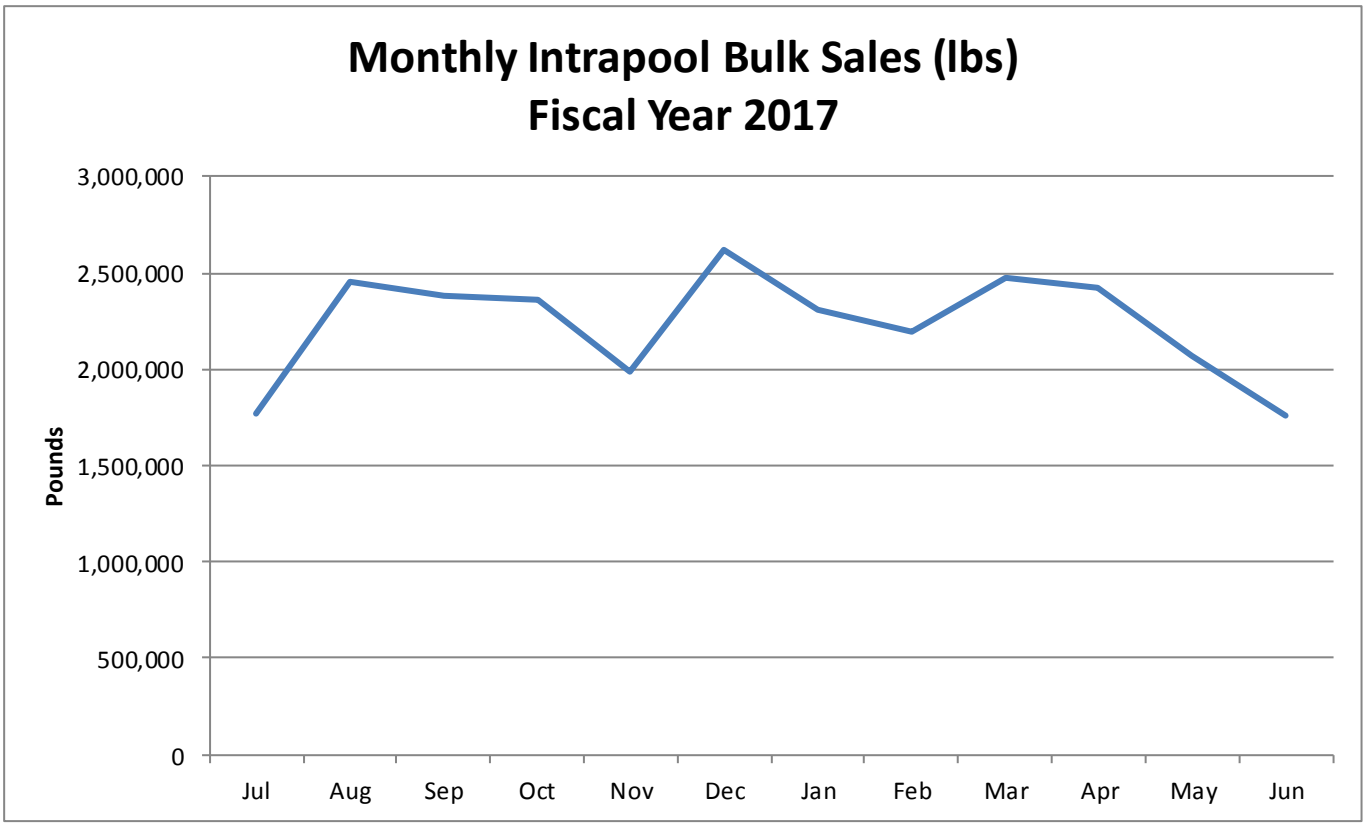

Monthly Out-of-State Bulk Hauling Costs
Fiscal Year 2017
$100,000
$90,000
$80,000
$70,000
$60,000
$50,000
$40,000
$30,000
$20,000
$10,000
$0
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun

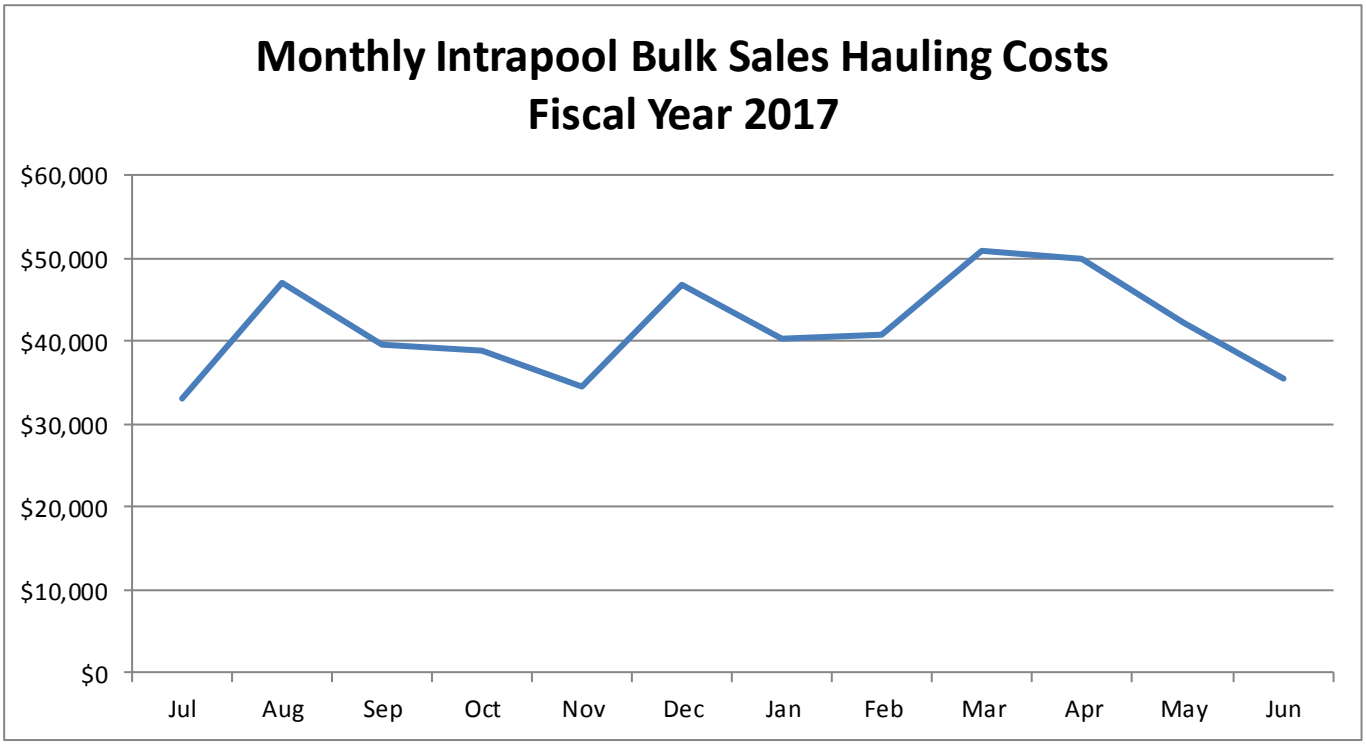

Monthly Out-of-State Average Hauling Rate ($/cwt)
Fiscal Year 2017
$/cwt
$4.00
$3.50
$3.00
$2.50
$2.00
$1.50
$1.00
$0.50
$0.00
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun

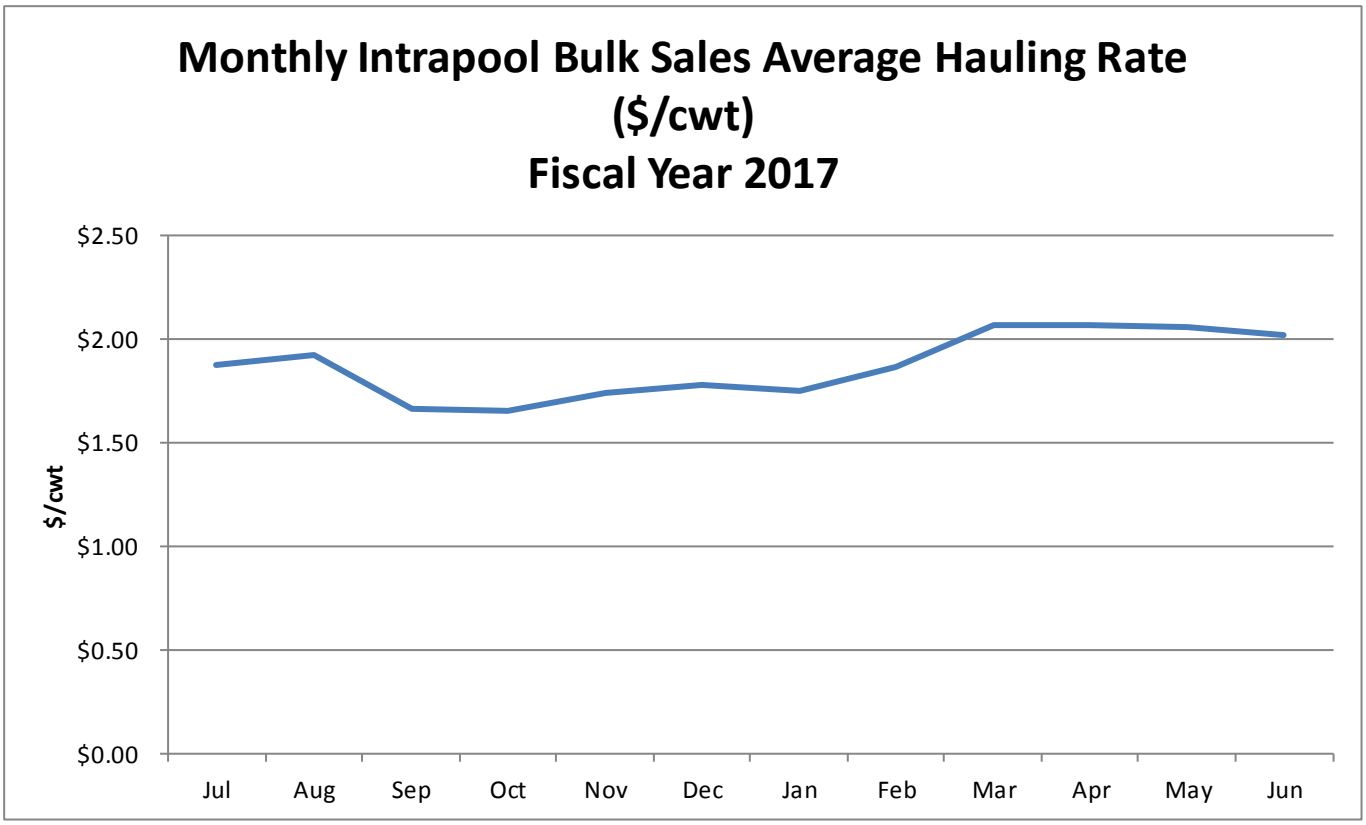


Freight Charges for Sale of Milk Sold in Bulk to Pool Handlers

The freight charges for sales of milk sold in bulk to other pool handlers is charged to the pool. The following three charts show the volume of such sales, the total freight charge, and average freight rates for each month in fiscal year 2017. The in-state freight costs were primarily driven by the volume of sales from Meadow Gold – Great Falls to Meadow Gold – Billings, but also are affected by the volume of sales from Darigold – Bozeman to Meadow Gold – Billings, which realize a lower unit freight cost. The freight rate for the sales by Darigold – Bozeman was less than the freight rate for sales by Meadow Gold – Great Falls because of the shorter hauling distance.


Monthly Intrapool Bulk Sales (lbs)
Fiscal Year 2017
Pounds
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun

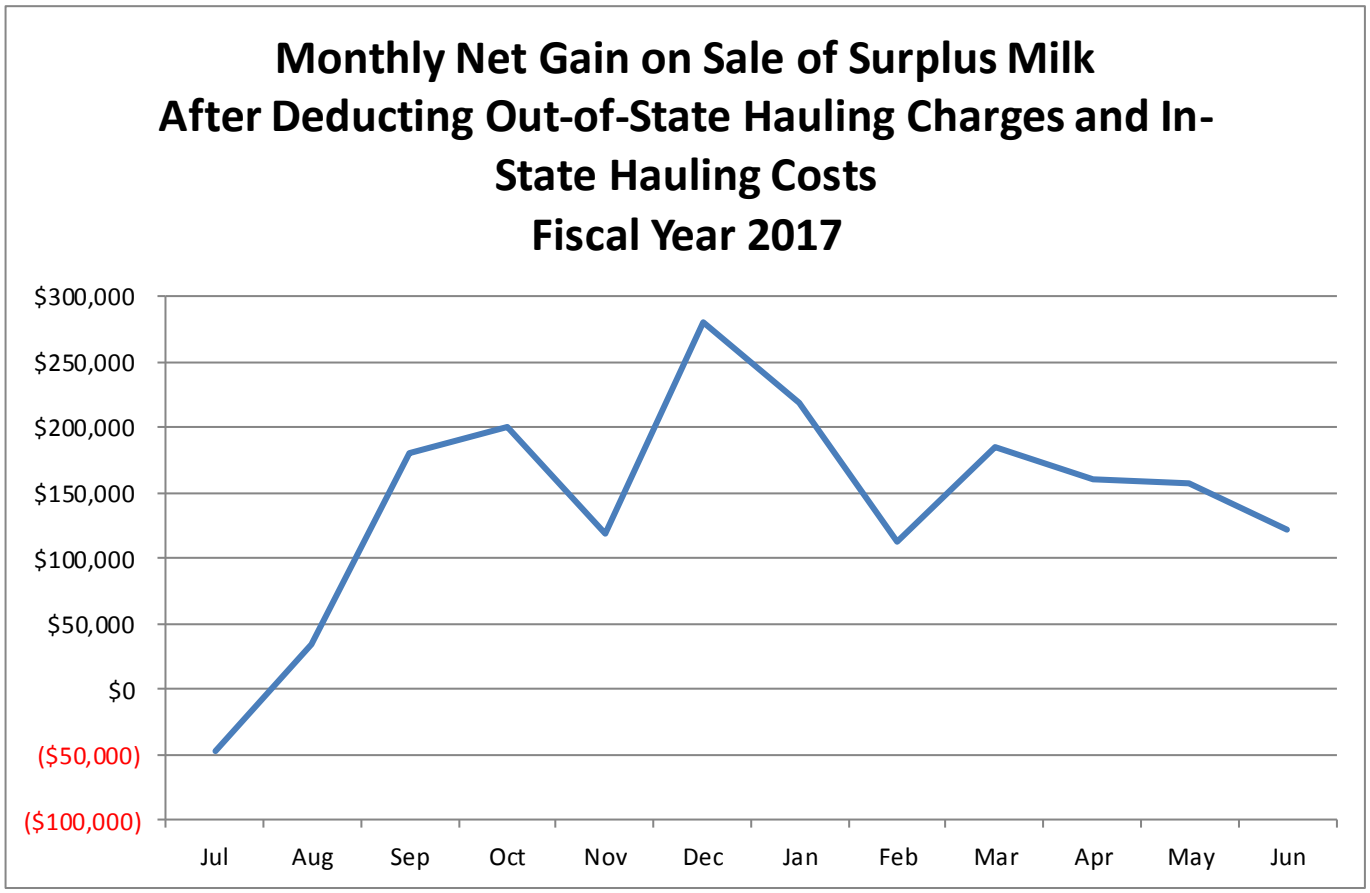

Monthly Intrapool Bulk Sales Hauling Costs
Fiscal Year 2017
$60,000
$50,000
$40,000
$30,000
$20,000
$10,000
$0
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun



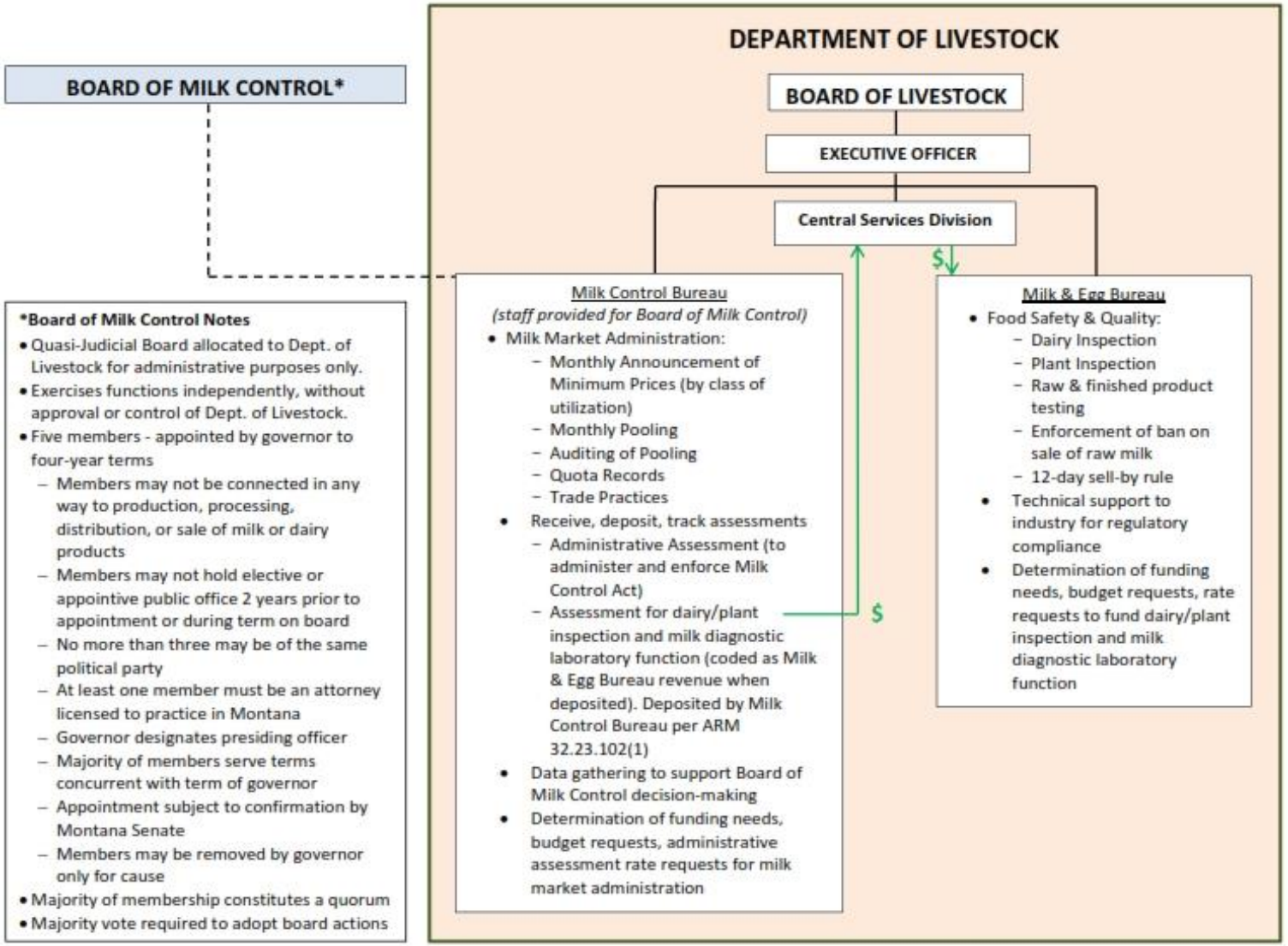
Net Gain on Sale of Surplus Milk After Hauling Deduction & Intrapool Sales Hauling Costs

In fiscal year 2017, the overall adjustment for surplus sales and in-state freight costs increased the pool utilization value by $1,217,220.

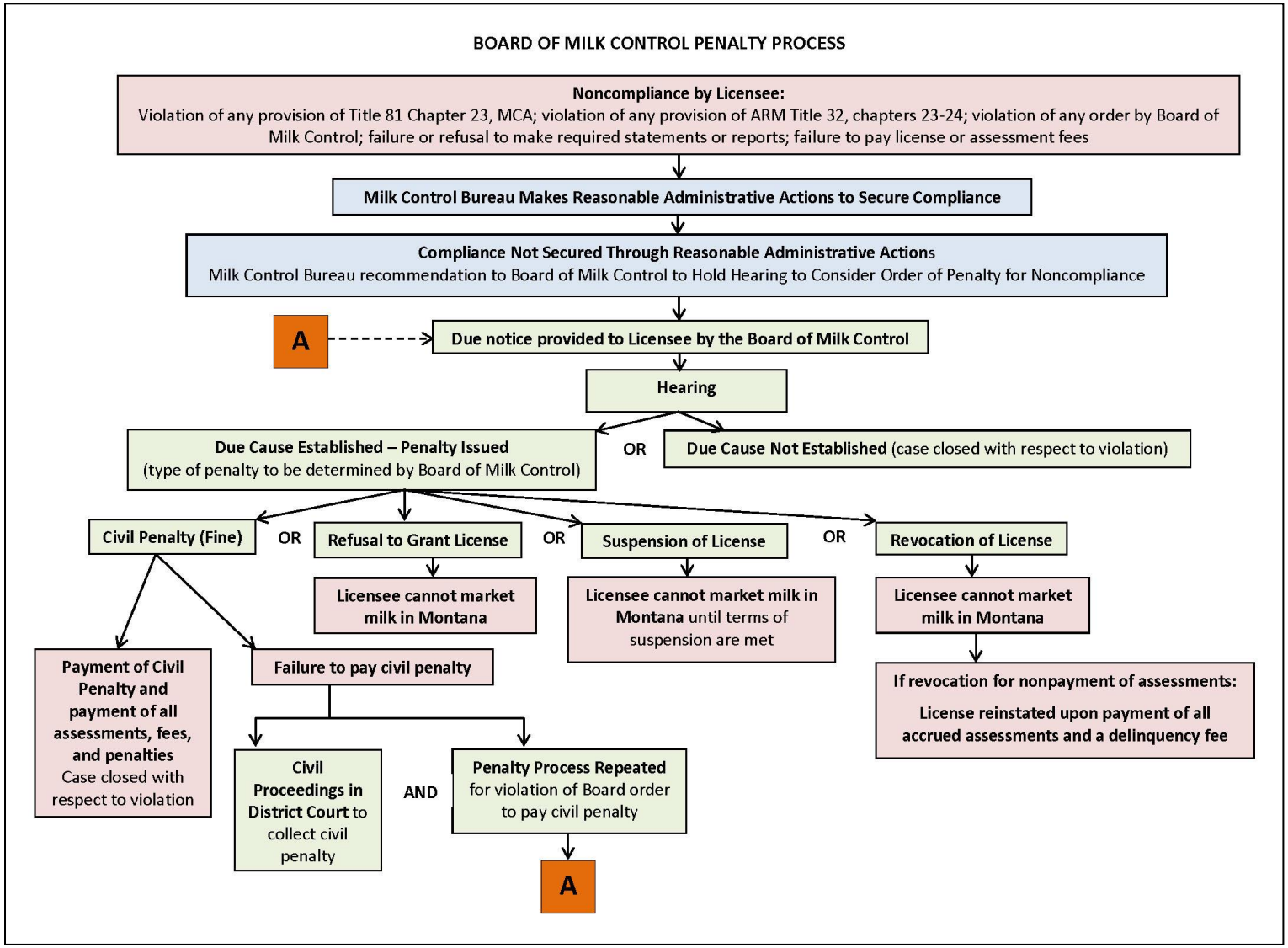
- The surplus sales of packaged milk contributed $1,860,560 to fiscal year 2017 pool utilization value.
- Net of freight charges, surplus sales of bulk milk to out-of-state markets reduced fiscal year 2017 pool utilization value by $143,057.
- Intrapool hauling costs reduced fiscal year 2017 pool utilization value by $500,283.


Monthly Net Gain on Sale of Surplus Milk
After Deducting Out-of-State Hauling Charges and In-State Hauling Costs
Fiscal Year 2017
$300,000
$250,000
$200,000
$150,000
$100,000
$50,000
$0
($50,000)
($100,000)
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun

APPENDIX A – BOARD OF MILK CONTROL & RELATIONSHIP WITH MONTANA DEPARTMENT OF LIVESTOCK



APPENDIX B – PENALTY PROCESS SCHEMATIC



APPENDIX C - REFERENCE PRICES USED FOR CALCULATION OF MINIMUM PRICES